THE HIGHWAYS OF COMMERCE

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THE CHRONICLES
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CONESTOGA WAGONS ON THE NATIONAL ROAD THROUGH PENNSYLVANIA, 1830–40

From the painting by C. W. Jefferys

THE HIGHWAYS OF COMMERCE

PART 1: THE PATHS OF INLAND COMMERCE

BY ARCHER B. HULBERT

PART 2: THE RAILROAD BUILDERS

BY JOHN MOODY

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PART I

THE PATHS OF INLAND COMMERCE

A CHRONICLE
OF TRAIL, ROAD, AND WATERWAY
BY
ARCHER B. HULBERT

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PREFACE

If the great American novel is ever written, I hazard the guess that its plot will be woven around the theme of American transportation, for that has been the vital factor in the national development of the United States. Every problem in the building of the Republic has been, in the last analysis, a problem in transportation. The author of such a novel will find a rich fund of material in the perpetual rivalries of pack-horseman and wagoner, of riverman and canal boatman, of steamboat promoter and railway capitalist. He will find at every point the old jostling and challenging the new: pack-horsemen demolishing wagons in the early days of the Alleghany traffic; wagoners deriding Clinton's Ditch; angry boatmen anxious to ram the paddle wheels of Fulton's *Clermont*, which threatened their monopoly. Such opposition has always been an incident of progress; and even in this new country, receptive as it was to new ideas, the Washingtons, the Fitches, the Fultons, the Coopers, and

the Whitneys, who saw visions and dreamed dreams, all had to face scepticism and hostility from those whom they would serve.

A. B. H.

Worcester, Mass.,
June, 1919.

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THE PATHS OF INLAND COMMERCE

CHAPTER I

THE MAN WHO CAUGHT THE VISION

INLAND America, at the birth of the Republic, was as great a mystery to the average dweller on the Atlantic seaboard as the elephant was to the blind men of Hindustan. The reports of those who had penetrated this wilderness — of those who had seen the barren ranges of the Alleghanies, the fertile uplands of the Unakas, the luxuriant blue-grass regions, the rich bottom lands of the Ohio and Mississippi, the wide shores of the inland seas, or the stretches of prairie increasing in width beyond the Wabash — seemed strangely contradictory, and no one had been able to patch these reports together and grasp the real proportions of the giant inland empire that had become a part of the United States. It was a pathless desert; it was a maze

of trails, trodden out by deer, buffalo, and Indian. Its great riverways were broad avenues for voyagers and explorers; they were treacherous gorges filled with the plunder of a million floods. It was a rich soil, a land of plenty; the natives were seldom more than a day removed from starvation. Within its broad confines could dwell a great people; but it was as inaccessible as the interior of China. It had a great commercial future; yet its gigantic distances and natural obstructions defied all known means of transportation.

Such were the varied and contradictory stories told by the men who had entered the portals of inland America. It is not surprising, therefore, that theories and prophecies about the interior were vague and conflicting nor that most of the schemes of statesmen and financiers for the development of the West were all parts and no whole. They all agreed as to the vast richness of that inland realm and took for granted an immense commerce therein that was certain to yield enormous profits. In far-away Paris, the ingenious diplomat, Silas Deane, writing to the Secret Committee of Congress in 1776, pictured the Old Northwest — bounded by the Ohio, the Alleghanies, the Great Lakes, and the Mississippi — as paying the whole expense of

the Revolutionary War.[1] Thomas Paine in 1780 drew specifications for a State of from twenty to thirty millions of acres lying west of Virginia and south of the Ohio River, the sale of which land would pay the cost of three years of the war.[2] On the other hand, Pelatiah Webster, patriotic economist that he was, decried in 1781 all schemes to "pawn" this vast westward region; he likened such plans to "killing the goose that laid an egg every day, in order to tear out at once all that was in her belly." He advocated the township system of compact and regular settlement; and he argued that any State making a cession of land would reap great benefit "from the produce and trade" of the newly created settlements.

There were mooted many other schemes. General Rufus Putnam, for example, advocated the

[1] Deane's plan was to grant a tract two hundred miles square at the junction of the Ohio and the Mississippi to a company on the condition that a thousand families should be settled on it within seven years. He added that, as this company would be in a great degree commercial, the establishing of commerce at the junction of those large rivers would immediately give a value to all the lands situated on or near them.

[2] Paine thought that while the new State could send its exports southward down the Mississippi, its imports must necessarily come from the East through Chesapeake Bay because the current of the Mississippi was too strong to be overcome by any means of navigation then known.

Pickering or "Army" plan of occupying the West; he wanted a fortified line to the Great Lakes, in case of war with England, and fortifications on the Ohio and the Mississippi, in case Spain should interrupt the national commerce on these waterways. And Thomas Jefferson theorized in his study over the toy states of Metropotamia and Polypotamia — brought his

> . . . trees and houses out
> And planted cities all about.

But it remained for George Washington, the Virginia planter, to catch, in something of its actual grandeur, the vision of a Republic stretching towards the setting sun, bound and unified by paths of inland commerce. It was Washington who traversed the long ranges of the Alleghanies, slept in the snows of Deer Park with no covering but his greatcoat, inquired eagerly of trapper and trader and herder concerning the courses of the Cheat, the Monongahela, and the Little Kanawha, and who drew from these personal explorations a clear and accurate picture of the future trade routes by which the country could be economically, socially, and nationally united.

Washington's experience had peculiarly fitted him to catch this vision. Fortune had turned him

westward as he left his mother's knee. First as a surveyor for Lord Fairfax in the Shenandoah Valley and later, under Braddock and Forbes, in the armies fighting for the Ohio against the French he had come to know the interior as it was known by no other man of his standing. His own landed property lay largely along the upper Potomac and in and beyond the Alleghanies. Washington's interest in this property was very real. Those who attempt to explain his early concern with the West as purely altruistic must misread his numerous letters and diaries. Nothing in his unofficial character shows more plainly than his business enterprise and acumen. On one occasion he wrote to his agent, Crawford, concerning a proposed land speculation: "I recommend that you keep this whole matter a secret or trust it only to those in whom you can confide. If the scheme I am now proposing to you were known, it might give alarm to others, and by putting them on a plan of the same nature, before we could lay a proper foundation for success ourselves, set the different interests clashing and in the end overturn the whole." Nor can it be denied that Washington's attitude to the commercial development of the West was characterized in his early days by a narrow colonial

partisanship. He was a stout Virginian; and all stout Virginians of that day refused to admit the pretensions of other colonies to the land beyond the mountains.

But from no man could the shackles of self-interest and provincial rivalry drop more quickly than they dropped from Washington when he found his country free after the close of the Revolutionary War. He then began to consider how that country might grow and prosper. And he began to preach the new doctrine of expansion and unity. This new doctrine first appears in a letter which he wrote to the Marquis de Chastellux in 1783, after a tour from his camp at Newburg into central New York, where he had explored the headwaters of the Mohawk and the Susquehanna: "I could not help taking a more extensive view of the vast inland navigation of these United States [the letter runs] and could not but be struck by the immense extent and importance of it, and of the goodness of that Providence which has dealt its favors to us with so profuse a hand. Would to God we may have wisdom enough to improve them. I shall not rest contented till I have explored the Western country, and traversed those lines, or great part of them, which have given bounds to a new empire."

"The vast inland navigation of these United States!" It is an interesting fact that Washington should have had his first glimpse of this vision from the strategic valley of the Mohawk, which was soon to rival his beloved Potomac as an improved commercial route from the seaboard to the West, and which was finally to achieve an unrivaled superiority in the days of the Erie Canal and the Twentieth Century Limited.

We may understand something of what the lure of the West meant to Washington when we learn that in order to carry out his proposed journey after the Revolution, he was compelled to refuse urgent invitations to visit Europe and be the guest of France. "I found it indispensably necessary," he writes, "to visit my Landed property West of the Apalacheon Mountains. . . . One object of my journey being to obtain information of the nearest and best communication between Eastern & Western waters; & to facilitate as much as in me lay the Inland Navigation of the Potomack."

On September 1, 1784, Washington set out from Mount Vernon on his journey to the West. Even the least romantic mind must feel a thrill in picturing this solitary horseman, the victor of Yorktown, threading the trails of the Potomac, passing on by

Cumberland and Fort Necessity and Braddock's grave to the Monongahela. The man, now at the height of his fame, is retracing the trails of his boyhood — covering ground over which he had passed as a young officer in the last English and French war — but he is seeing the land in so much larger perspective that, although his diary is voluminous, the reader of those pages would not know that Washington had been this way before. Concerning Great Meadows, where he first saw the "bright face of danger" and which he once described gleefully as "a charming place for an encounter," he now significantly remarks: "The upland, East of the meadow, is good for grain." Changed are the ardent dreams that filled the young man's heart when he wrote to his mother from this region that singing bullets "have truly a charming sound." Today, as he looks upon the flow of Youghiogheny, he sees it reaching out its finger tips to Potomac's tributaries. He perceives a similar movement all along the chain of the Alleghanies: on the west are the Great Lakes and the Ohio, and reaching out towards them from the east, waiting to be joined by portage road and canal, are the Hudson, the Susquehanna, the Potomac, and the James. He foresees these streams bearing to the Atlantic ports

the golden produce of the interior and carrying back to the interior the manufactured goods of the seaboard. He foresees the Republic becoming homogeneous, rich, and happy. "Open *all* the communication which nature has afforded," he wrote Henry Lee, "between the Atlantic States and the Western territory, and encourage the use of them to the utmost . . . and sure I am there is no other tie by which they will long form a link in the chain of Federal Union."

Crude as were the material methods by which Washington hoped to accomplish this end, in spirit he saw the very America that we know today; and he marked out accurately the actual pathways of inland commerce that have played their part in the making of America. Taking the city of Detroit as the key position, commercially, he traced the main lines of internal trade. He foresaw New York improving her natural line of communication by way of the Mohawk and the Niagara frontier on Lake Erie — the present line of the Erie Canal and the New York Central Railway. For Pennsylvania, he pointed out the importance of linking the Schuylkill and the Susquehanna and of opening the two avenues westward to Pittsburgh and to Lake Erie. In general, he thus forecast the Pennsylvania Canal

and the Pennsylvania and the Erie railways. For Maryland and Virginia he indicated the Potomac route as the nearest for all the trade of the Ohio Valley, with the route by way of the James and the Great Kanawha as an alternative for the settlements on the lower Ohio. His vision here was realized in a later day by the Potomac and the Chesapeake and Ohio Canal, the Cumberland Road, the Baltimore and Ohio Railway, and by the James-Kanawha Turnpike and the Chesapeake and Ohio Railway.

Washington's general conclusions are stated in a summary at the end of his *Journal*, which was reproduced in his classic letter to Harrison, written in 1784. His first point is that every State which had water routes reaching westward could enhance the value of its lands, increase its commerce, and quiet the democratic turbulence of its shut-in pioneer communities by the improvement of its river transportation. Taking Pennsylvania as a specific example, he declared that "there are one hundred thousand souls West of the Laurel Hill, who are groaning under the inconveniences of a long land transportation. . . . If this cannot be made easy for them to Philadelphia . . . they will seek a mart elsewhere. . . . An opposition on the part

of [that] government . . . would ultimately bring on a separation between its Eastern and Western settlements; towards which there is not wanting a disposition at this moment in that part of it beyond the mountains."

Washington's second proposal was the achievement of a new and lasting conquest of the West by binding it to the seaboard with chains of commerce. He thus states his point: "No well informed mind need be told that the flanks and rear of the United territory are possessed by other powers, and formidable ones too — nor how necessary it is to apply the cement of interest to bind all parts of it together, by one indissoluble bond — particularly the middle States with the Country immediately back of them — for what ties let me ask, should we have upon those people; and how entirely unconnected should we be with them if the Spaniards on their right or Great Britain on their left, instead of throwing stumbling blocks in their way as they do now, should invite their trade and seek alliances with them?"

Some of the pictures in Washington's vision reveal, in the light of subsequent events, an almost uncanny prescience. He very plainly prophesied the international rivalry for the trade of the Great

Lakes zone, embodied today in the Welland and the Erie canals. He declared the possibility of navigating with ocean-going vessels the tortuous two-thousand-mile channel of the Ohio and the Mississippi River; and within sixteen years ships left the Ohio, crossed the Atlantic, and sailed into the Mediterranean. His description of a possible insurrection of a western community might well have been written later; it might almost indeed have made a page of his diary after he became President of the United States and during the Whiskey Insurrection in western Pennsylvania. He approved and encouraged Rumsey's mechanical invention for propelling boats against the stream, showing that he had a glimpse of what was to follow after Fitch, Rumsey, and Fulton should have overcome the mighty currents of the Hudson and the Ohio with the steamboat's paddle wheel. His proposal that Congress should undertake a survey of western rivers for the purpose of giving people at large a knowledge of their possible importance as avenues of commerce was a forecast of the Lewis and Clark expedition as well as of the policy of the Government today for the improvement of the great inland rivers and harbors.

"The destinies of our country run east and west.

Intercourse between the mighty interior west and the sea coast is the great principle of our commercial prosperity." These are the words of Edward Everett in advocating the Boston and Albany Railroad. In effect Washington had uttered those same words half a century earlier when he gave momentum to an era filled with energetic but unsuccessful efforts to join with the waters of the West the rivers reaching inland from the Atlantic. The fact that American engineering science had not in his day reached a point where it could cope with this problem successfully should in no wise lessen our admiration for the man who had thus caught the vision of a nation united and unified by improved methods of transportation.

CHAPTER II

THE RED MAN'S TRAIL

For the beginnings of the paths of our inland commerce, we must look far back into the dim prehistoric ages of America. The earliest routes that threaded the continent were the streams and the tracks beaten out by the heavier four-footed animals. The Indian hunter followed the migrations of the animals and the streams that would float his light canoe. Today the main lines of travel and transportation for the most part still cling to these primeval pathways.

In their wanderings, man and beast alike sought the heights, the passes that pierced the mountain chains, and the headwaters of navigable rivers. On the ridges the forest growth was lightest and there was little obstruction from fallen timber; rain and frost caused least damage by erosion; and the winds swept the trails clear of leaves in summer and of snow in winter. Here lay the easiest paths for

the heavy, blundering buffalo and the roving elk and moose and deer. Here, high up in the sun, where the outlook was unobstructed and signal fires could be seen from every direction, on the longest watersheds, curving around river and swamp, ran the earliest travel routes of the aboriginal inhabitants and of their successors, the red men of historic times. For their encampments and towns these peoples seem to have preferred the more sheltered ground along the smaller streams; but, when they fared abroad to hunt, to trade, to wage war, to seek new material for pipe and amulet, they followed in the main the highest ways.

If in imagination one surveys the eastern half of the North American continent from one of the strategic passageways of the Alleghanies, say from Cumberland Gap or from above Kittanning Gorge, the outstanding feature in the picture will be the Appalachian barrier that separates the interior from the Atlantic coast. To the north lie the Adirondacks and the Berkshire Hills, hedging New England in close to the ocean. Two glittering waterways lie east and west of these heights — the Connecticut and the Hudson. Upon the valleys of these two rivers converged the two deeply worn pathways of the Puritan, the Old Bay Path

and the Connecticut Path. By way of Westfield River, that silver tributary which joins the Connecticut at Springfield, Massachusetts, the Bay Path surmounted the Berkshire highlands and united old Massachusetts to the upper Hudson Valley near Fort Orange, now Albany.

Here, north of the Catskills, the Appalachian barrier subsides and gives New York a supreme advantage over all the other Atlantic States — a level route to the Great Lakes and the West. The Mohawk River threads the smiling landscape; beyond lies the "Finger Lake country" and the valley of the Genesee. Through this romantic region ran the Mohawk Trail, sending offshoots to Lake Champlain and the St. Lawrence, to the Susquehanna, and to the Allegheny. A few names have been altered in the course of years — the Bay Path is now the Boston and Albany Railroad, the Mohawk Trail is the New York Central, and Fort Orange is Albany — and thus we may tell in a dozen words the story of three centuries.

Upon Fort Orange converged the score of land and water pathways of the fur trade of our North. These Indian trade routes were slowly widened into colonial roads, notably the Mohawk and Catskill turnpikes, and these in turn were transformed into

the Erie, Lehigh, Nickel Plate, and New York Central railways. But from the day when the canoe and the keel boat floated their bulky cargoes of pelts or the heavy laden Indian pony trudged the trail, the routes of trade have been little or nothing altered.

Traversing the line of the Alleghanies southward, the eye notes first the break in the wall at the Delaware Water Gap, and then that long arm of the Susquehanna, the Juniata, reaching out through dark Kittanning Gorge to its silver playmate, the dancing Conemaugh. Here amid its leafy aisles ran the brown and red Kittanning Trail, the main route of the Pennsylvania traders from the rich region of York, Lancaster, and Chambersburg. On this general alignment the *Broadway Limited* flies today toward Pittsburgh and Chicago. A little to the south another important pathway from the same region led, by way of Carlisle, Bedford, and Ligonier, to the Ohio. The "Highland Trail" the Indian traders called it, for it kept well on the watershed dividing the Allegheny tributaries on the north from those of the Monongahela on the south.

Farther to the south the scene shows a change, for the Atlantic plain widens considerably. The Potomac River, the James, the Pedee, and the Savannah flow through valleys much longer than

those of the northern rivers. Here in the South commerce was carried on mainly by shallop and pinnace. The trails of the Indian skirted the rivers and offered for trader and explorer passageway to the West, especially to the towns of the Cherokees in the southern Alleghanies or Unakas; but the waterways and the roads over which the hogsheads of tobacco were rolled (hence called "rolling roads") sufficed for the needs of the thin fringes of population settled along the rivers. Trails from Winchester in Virginia and Frederick in Maryland focused on Cumberland at the head of the Potomac. Beyond, to the west, the finger tips of the Potomac interlocked closely with the Monongahela and Youghiogheny, and through this network of mountain and river valley, by the "Shades of Death" and Great Meadows, coiled Nemacolin's Path to the Ohio. Even today this ancient route is in part followed by the Baltimore and Ohio and the Western Maryland Railway.

A bird's-eye view of the southern Alleghanies shows that, while the Atlantic plain of Virginia and the Carolinas widens out, the mountain chains increase in number, fold on fold, from the Blue Ridge to the ragged ranges of the Cumberlands. Few trails led across this manifold barrier. There was

a connection at Balcony Falls between the James River and the Great Kanawha; but as a trade route it was of no such value to the men of its day as the Chesapeake and Ohio system over the same course is to us. As in the North, so in the South, trade avoided obstacles by taking a roundabout, and often the longest route. In order to double the extremity of the Unakas, for instance, the trails reached down by the Valley of Virginia and New River to the uplands of the Tennessee, and here, near Elizabethton, they met the trails leading up the Broad and the Yadkin rivers from Charleston, South Carolina.

To the west rise the somber heights of Cumberland Gap. Through this portal ran the famous "Warrior's Path," known to wandering hunters, the "trail of iron" from Fort Watauga and Fort Chiswell, which Daniel Boone widened for the settlers of Kentucky. To the southwest lay the Blue Grass region of Tennessee with its various trails converging on Nashville from almost every direction. Today the Southern Railway enters the "Sapphire Country," in which Asheville lies, by practically the same route as the old Rutherfordton Trail which was used for generations by red man and pioneer from the Carolina coast.

In our entire region of the Appalachians, from the Berkshire Hills southward, practically every old-time pathway from the seaboard to the trans-Alleghany country is now occupied by an important railway system, with the exception of the Warrior's Trail through Cumberland Gap to central Ohio and the Highland Trail across southern Pennsylvania. And even Cumberland Gap is accessible by rail today, and a line across southern Pennsylvania was once planned and partially constructed only to be killed by jealous rivals.

These numerous keys to the Alleghanies were a challenge to the men of the seaboard to seize upon the rich trade of the West which had been early monopolized by the French in Canada. But the challenge brought its difficult problems. What land canoes could compete with the flotillas that brought their priceless cargoes of furs each year to Montreal and Quebec? What race of landlubbers could vie with the picturesque bands of fearless *voyageurs* who sang their songs on the Great Lakes, the Ohio, the Illinois, and the Mississippi?

In the solution of this problem of diverting trade probably the factor of greatest importance, next to open pathways through the mountain barriers, was the rich stock-breeding ground lying between

the Delaware and the Susquehanna rivers, a region occupied by the settlers familiarly known as the Pennsylvania Dutch. In this famous belt, runing from Pennsylvania into Virginia, originated the historic pack-horse trade with the "far Indians" of the Ohio Valley. Here, in the first granary of America, Germans, Scotch-Irish, and English bred horses worthy of the name. "Brave fat Horses" an amazed officer under Braddock called the mounts of five Quakers who unexpectedly rode into camp as though straight "from the land of Goshen." These animals, crossed with the Indian "pony" from New Spain, produced the wise, wiry, and sturdy pack-horse, fit to transport nearly two hundred pounds of merchandise across the rough and narrow Alleghany trails. This animal and the heavy Conestoga horse from the same breeding ground revolutionized inland commerce.

The first American cow pony was not without his cowboy. Though the drivers were not all of the same type and though the proprietors, so to speak, of the trans-Alleghany pack-horse trade came generally from the older settlements, the bulk of the hard work was done by a lusty army of men not reproduced again in America until the picturesque figure of the cow-puncher appeared above

the western horizon. This breed of men was nurtured on the outer confines of civilization, along the headwaters of the Susquehanna, the Potomac, the James, and the Broad — the country of the "Cowpens." Rough as the wilderness they occupied, made strong by their diet of meat and curds, these Tatars of the highlands played a part in the commercial history of America that has never had its historian. In their knowledge of Indian character, of horse and packsaddle lore, of the forest and its trails in every season, these men of the Cowpens were the kings of the old frontier.

An officer under Braddock has left us one of the few pictures of these people[1]:

From the Heart of the Settlements we are now got into the Cow-pens; the Keepers of these are very extraordinary Kind of Fellows, they drive up their Herds on Horseback, and they had need do so, for their Cattle are near as wild as Deer; a Cow-pen generally consists of a very large Cottage or House in the Woods, with about four-score or one hundred Acres, inclosed with high Rails and divided; a small Inclosure they keep for Corn, for the family, the rest is the Pasture in which they keep their calves; but the Manner is far different from any Thing you ever saw; they may perhaps have a Stock of four or five hundred to a thousand Head of Cattle belonging to a Cow-pen, these run as they please

[1] *Extracts of Letters from an Officer* (London, 1755).

in the Great Woods, where there are no Inclosures to stop them. In the Month of March the Cows begin to drop their Calves, then the Cow-pen Master, with all his Men, rides out to see and drive up the Cows with all their new fallen Calves; they being weak cannot run away so as to escape, therefore are easily drove up, and the Bulls and other Cattle follow them; and they put these Calves into the Pasture, and every Morning and Evening suffer the Cows to come and suckle them, which done they let the Cows out into the great Woods to shift for their Food as well as they can; whilst the Calf is sucking one Tit of the Cow, the Woman of the Cow-Pen is milking one of the other Tits, so that she steals some Milk from the Cow, who thinks she is giving it to the Calf; soon as the Cow begins to go dry, and the Calf grows Strong, they mark them, if they are Males they cut them, and let them go into the Wood. Every Year in September and October they drive up the Market Steers, that are fat and of a proper Age, and kill them; they say they are fat in October, but I am sure they are not so in May, June and July; they reckon that out of 100 Head of Cattle they can kill about 10 or 12 steers, and four or five Cows a Year; so they reckon that a Cow-Pen for every 100 Head of Cattle brings about £40 Sterling per Year. The Keepers live chiefly upon Milk, for out of their Vast Herds, they do condescend to tame Cows enough to keep their Family in Milk, Whey, Curds, Cheese and Butter; they also have Flesh in Abundance such as it is, for they eat the old Cows and lean Calves that are like to die. The Cow-Pen Men are hardy People, are almost continually on Horseback, being obliged to know the Haunts of their Cattle.

You see, Sir, what a wild set of Creatures Our English Men grow into, when they lose Society, and it is surprising to think how many Advantages they throw away, which our industrious Country-Men would be glad of: Out of many hundred Cows they will not give themselves the trouble of milking more than will maintain their Family.

With such a race of born horsemen, every whit as bold and resourceful as the *voyageurs*, to bear the brunt of a new era of transportation, all that was needed to challenge French trade beyond the Alleghanies was competent and aggressive leadership. The situation called for men of means, men of daring, men closely in touch with governors and assemblies and acquainted with the web of politics that was being spun at Philadelphia, Williamsburg, New York, London, and Paris. Generations of tenacious struggle along the American frontier had developed such men. The Weisers, Croghans, Gists, Washingtons, Franklins, Walkers, and Cresaps were men of varied descent and nationality. They had the cunning, the boldness, and the resources to undertake successfully the task of conquering commercially the Great West. They were the first men of the colonies to be unafraid of that bugbear of the trader, Distance. We may aptly call them the first Americans because, though not

a few were actually born abroad, they were the first whose plans, spirit, and very life were dominated by the vision of an America of continental dimensions.

The long story of French and English rivalry and of the war which ended it concerns us here chiefly as a commercial struggle. The French at Niagara (1749) had access to the Ohio by way of Lake Erie and any one of several rivers — the Allegheny, the Muskingum, the Scioto, or the Miami. The main routes of the English were the Nemacolin and Kittanning paths. The French, laboring under the disadvantages of the longer distance over which their goods had to be transported to the Indians and of the higher price necessarily demanded for them, had to meet the competition of the traders from the rival colonies of Pennsylvania and Virginia, each of them jealous of and underbidding the other.

When Céloron de Blainville was sent to the Allegheny in 1749, by the Governor of New France, his message was that "the Governor of Canada desired his children on Ohio to turn away the English Traders from amongst them and discharge them from ever coming to trade there again, or on any of the Branches." He sent away all the traders whom he found, giving them letters addressed to their respective governors denying England's right to trade in

the West. To offset this move, within two years Pennsylvania sent goods to the value of nine hundred pounds in order to hold the Indians constant. The Governor had already ordered the traders to sell whiskey to the Indians at "5 Bucks" per cask and had told the Indians, through his agent Conrad Weiser, that if any trader refused to sell the liquor at that price they might "take it from him and drink it for nothing." There was but one way for the French to meet such competition. Without delay they fortified the Allegheny and began to coerce the natives. Driving away the carpenters of the Ohio Company from the present site of Pittsburgh, they built Fort Duquesne. The beginning of the Old French War ended what we may call the first era of the pack-horse trade.

The capture of Fort Duquesne by the English army under General Forbes in 1758 and the final conquest of New France two years later removed the French barrier and opened the way to expansion beyond the Alleghanies. Thereafter settlements in the Monongahela country grew apace. Pittsburgh, Uniontown, Morgantown, Brownsville, Ligonier, Greensburg, Connellsville — we give the modern names — became centers of a great migration which was halted only for a season by Pontiac's

Rebellion, the aftermath of the French War, and was resumed immediately on the suppression of that Indian rising. The pack-horse trade now entered its final and most important era. The earlier period was one in which the trade was confined chiefly to the Indians; the later phase was concerned with supplying the needs of the white man in his rapidly developing frontier settlements. Formerly the principal articles of merchandise for the western trade were guns, ammunition, knives, kettles, and tools for their repair, blankets, tobacco, hatchets, and liquor. In the new era every known product of the East found a market in the thriving communities of the upper Ohio. As time went on the West began to send to the East, in addition to skins and pelts, whiskey that brought a dollar a gallon. Each pony could carry sixteen gallons and every drop could be sold for real money. On the return trip the pack-horses carried back chiefly salt and iron.

Doddridge's *Notes*, one of the chief sources of our information, gives this lively picture:

In the fall of the year, after seeding time, every family formed an association with some of their neighbors, for starting the little caravan. A master driver was to be selected from among them, who was to be

assisted by one or more young men and sometimes a boy or two. The horses were fitted out with pack-saddles, to the latter part of which was fastened a pair of hobbles made of hickory withes, — a bell and collar ornamented their necks. The bags provided for the conveyance of the salt were filled with bread, jerk, boiled ham, and cheese furnished a provision for the drivers. At night, after feeding, the horses, whether put in pasture or turned out into the woods, were hobbled and the bells were opened. The barter for salt and iron was made first at Baltimore; Frederick, Hagerstown, Oldtown, and Fort Cumberland, in succession, became the places of exchange. Each horse carried two bushels of alum salt, weighing eighty-four pounds to the bushel. This, to be sure, was not a heavy load for the horses, but it was enough, considering the scanty subsistence allowed them on the journey. The common price of a bushel of alum salt, at an early period, was a good cow and a calf.

Thus, with the English flag afloat at Fort Pitt, as Duquesne was renamed after its capture, a new day dawned for the great region to the West. Beyond the Alleghanies and as far as the Rockies, a new science of transportation was now to be learned — the art of finding the dividing ridge. Here the first routes, like the "Great Trail" from Pittsburgh to Detroit, struck out with an assurance that is in marvelous agreement with the findings of the surveyors of a later day. The railways,

when they came, found the valleys and penetrated with their tunnels the watersheds from the heads of the streams of one drainage area to the streams of another. Thus on the Pennsylvania, the Baltimore and Ohio, the Southern, the Chesapeake and Ohio, and other railroads, important tunnels are to be found lying immediately under the Red Man's trail which clung to the long ascending slope and held persistently to the dividing ridges.

Even this necessarily brief survey shows plainly how that preëminently American institution, the ridge road, came about. East and west, it was the legitimate and natural successor to the ancient trail. With the coming of the wagon, whose rattle was heard among the hills as early as Braddock's campaign, the process of lowering these paths from the heights was inevitably begun, and it was to the riverways that men first looked for a solution of the difficult problems of inland commerce. Eventually the paths of inland commerce constituted a vast network of canals, roads, and railway lines in those very valleys to which Washington had called the nation's attention in 1784.

CHAPTER III

THE MASTERY OF THE RIVERS

It would perhaps have been well, in the light of later difficulties and failures, if the men who at Washington's call undertook to master the capricious rivers of the seaboard had studied a stately Spanish decree which declared that, since God had not made the rivers of Spain navigable, it were sacrilege for mortals to attempt to do so. Even before the Revolution, Mayor Rhodes of Philadelphia was in correspondence with Franklin in London concerning the experiences of European engineers in harnessing foreign streams. That sage philosopher, writing to Rhodes in 1772, uttered a clear word of warning: "rivers are ungovernable things," he had said, and English engineers "seldom or never use a River where it can be avoided." But it was the birthright of New World democracy to make its own mistakes and in so doing to prove for itself the errors of the Old World.

As energetic men all along the Atlantic Plain now took up the problem of improving the inland rivers, they faced a storm of criticism and ridicule that would have daunted any but such as Washington and Johnson of Virginia or White and Hazard of Pennsylvania or Morris and Watson of New York. Every imaginable objection to such projects was advanced — from the inefficiency of the science of engineering to the probable destruction of all the fish in the streams. In spite of these discouragements, however, various men set themselves to form in rapid succession the Potomac Company in 1785, the Society for Promoting the Improvement of Inland Navigation in 1791, the Western Inland Lock Navigation Company in 1792, and the Lehigh Coal Mine Company in 1793. A brief review of these various enterprises will give a clear if not a complete view of the first era of inland water commerce in America.

The Potomac Company, authorized in 1785 by the legislatures of Maryland and Virginia, received an appropriation of $6666 from each State for opening a road from the headwaters of the Potomac to either the Cheat or the Monongahela, "as commissioners . . . shall find most convenient and beneficial to the Western settlers." This was the

only public aid which the enterprise received; and the stipulated purpose clearly indicates the fact that, in the minds of its promoters, the transcontinental character of the undertaking appeared to be vital. The remainder of the money required for the work was raised by public subscription in the principal cities of the two States. In this way £40,300 was subscribed, Virginia men taking 266 shares and Maryland men 137 shares. The stockholders elected George Washington as president of the company, at a salary of thirty shillings a year, with four directors to aid him, and they chose as general manager James Rumsey, the boat mechanician. These men then proceeded to attack the chief impediments in the Potomac — the Great Falls above Washington, the Senêca Falls at the mouth of Seneca Creek, and the Shenandoah Falls at Harper's Ferry. But, as they had difficulty in obtaining workmen and sufficient liquor to cheer them in their herculean tasks, they made such slow progress that subscribers, doubting Washington's optimistic prophecy that the stock would increase in value twenty per cent, paid their assessments only after much deliberation or not at all. Thirty-six years later, though $729,380 had been spent and lock canals had been opened about the unnavigable

stretches of the Potomac River, a commission appointed to examine the affairs of the company reported "that the floods and freshets nevertheless gave the only navigation that was enjoyed." As for the road between the Potomac and the Cheat or the Monongahela, the records at hand do not show that the money voted for that enterprise had been used.

The Potomac Company nevertheless had accomplished something: it had acquired an asset of the greatest value — a right of way up the strategic Potomac Valley; and it had furnished an object lesson to men in other States who were struggling with a similar problem. When, as will soon be apparent, New York men undertook the improvement of the Mohawk waterway there was no pattern of canal construction for them to follow in America except the inadequate wooden locks erected along the Potomac. It is interesting to know that Elkanah Watson, prominent in inland navigation to the North, went down from New York in order to study these wooden locks and that New Yorkers adopted them as models, though they changed the material to brick and finally to stone.

Pennsylvania had been foremost among the colonies in canal building, for it had surveyed as early

as 1762 the first lock canal in America, from near Reading on the Schuylkill to Middletown on the Susquehanna. Work, however, had to be suspended when Pontiac's Rebellion threw the inland country into a panic. But the enterprise of Maryland and Virginia in 1785 in developing the Potomac aroused the Pennsylvanians to renewed activity. The Society for Promoting the Improvement of Roads and Inland Navigation set forth a programme that was as broad as the Keystone State itself. Their ultimate object was to capture the trade of the Great Lakes. "If we turn our view," read the memorial which the Society presented to the Legislature, "to the immense territories connected with the Ohio and Mississippi waters, and bordering on the Great Lakes, it will appear . . . that our communication with those vast countries (considering Fort Pitt as the port of entrance upon them) is as easy and may be rendered as cheap, as to any other port on the Atlantic tide waters."

Pennsylvania, lying between Virginia and New York, occupied a peculiar position. Her Susquehanna Valley stretched northwest — not so directly west as did the Potomac on the south and the Mohawk on the north. This more northerly trend led these early Pennsylvania promoters to believe

that, while they might "only have a share in the trade of those [the Ohio] waters," they could absolutely secure for themselves the trade of the Great Lakes, "taking Presq' Isle [Erie, Pennsylvania] which is within our own State, as the great mart or place of embarkation."

The plan which the Society proposed involved the improvement of water and land routes by way of the Delaware to Lake Ontario and Lake Otsego, and of eight routes by the Susquehanna drainage, north, northwest, and west. A bill which passed the Legislature on April 13, 1791, appropriated money for these improvements. Work was begun immediately on the Schuylkill-Susquehanna Canal, but only four miles had been completed by 1794, when the Lancaster Turnpike directed men's attention to improved highways as an alternative more likely than canals to provide the desired facilities for inland transportation. The work on the canal was renewed, however, in 1821, when the rival Erie Canal was nearing completion, and was finished in 1827. It became known as the Union Canal and formed a link in the Pennsylvania canal system, the development of which will be described in a later chapter.

In New York State, throughout the period of the

Old French and the Revolutionary wars, barges and keel boats had plied the Mohawk, Wood Creek, and the Oswego to Lake Ontario. Around such obstructions as Cohoes Falls, Little Falls, and the portage at Rome to Wood Creek, wagons, sleds, and pack-horses had transferred the cargoes. To avoid this labor and delay men soon conceived of conquering these obstacles by locks and canals. As early as 1777 the brilliant Gouverneur Morris had a vision of the economic development of his State when "the waters of the great western inland seas would, by the aid of man, break through their barriers and mingle with those of the Hudson."

Elkanah Watson was in many ways the Washington of New York. He had the foresight, patience, and persistence of the Virginia planter. His *Journal* of a tour up the Mohawk in 1788 and a pamphlet which he published in 1791 may be said to be the ultimate sources in any history of the internal commerce of New York. As a result, a company known as "The President, Directors, and Company of the Western Inland Lock Navigation in the State of New York," with a capital stock of $25,000, was authorized by act of legislature in March, 1792, and the State subscribed for $12,500 in stock. Many singular provisions were inserted

in this charter, but none more remarkable than one which stipulated that all profits over fifteen per cent should revert to the State Treasury. This hint concerning surplus profits, however, did not cause a stampede when the books were opened for subscriptions in New York and Albany. In later years, when the Erie Canal gave promise of a new era in American inland commerce, Elkanah Watson recalled with a grim satisfaction the efforts of these early days. The subscription books at the old Coffee House in New York, he tells us, lay open three days without an entry, and at Lewis's tavern in Albany, where the books were opened for a similar period, "no mortal" had subscribed for more than two shares.

The system proposed for the improvement of the waterways of New York was similar to that projected for the Potomac. A canal was to be cut from the Mohawk to the Hudson in order to avoid Cohoes Falls; a canal with locks would overcome the forty-foot drop at Little Falls; another canal over five thousand feet in length was to connect the Mohawk and Wood Creek at Rome; minor improvements were to be made between Schenectady and the mouth of the Schoharie; and finally the Oswego Falls at Rochester were to be circumvented

also by canal. All the objections, difficulties, and discouragements which had attended efforts to improve waterways elsewhere in America confronted these New York promoters. They began in 1793 at Little Falls but were soon forced to cease owing to the failure of funds. Under the encouraging spur of a state subscription to two hundred shares of stock, they renewed their efforts in 1794 but were again forced to abandon the work before the year had passed. By November, 1795, however, they had completed the canal and in thirty days had received toll to the amount of about four hundred dollars.

The total actual work done is not clearly shown by the documents, but it is evident that the measure of success achieved was not equaled elsewhere on similar improvements on a large scale. From 1796 to 1804 the tolls received at Rome amounted to over fifteen thousand dollars, and at Little Falls to over fifty-eight thousand dollars — a sum which exceeded the original cost of construction. Dividends had crept up from three per cent in 1798 to five and a half per cent in 1817, the year in which work was begun on the Erie Canal.

No struggle for the mastery of an American river matches in certain respects the effort of the

Lehigh Coal and Navigation Company to bridle the Lehigh and make it play its part in the commercial development of Pennsylvania. The failures and trials of the promoters of this company were no less remarkable than was the great success that eventually crowned the effort. In 1793 the Lehigh Coal Mine Company was organized and purchased some ten thousand acres in the Mauch Chunk anthracite region, nine miles from the Lehigh River. It then appropriated a sum of money to build a road from the mines to the river in the expectation that the State would improve the navigation of the waterway, for which, it has already been noted, an appropriation had been made in 1791, in accordance with the programme of the Society for Promoting the Improvement of Roads and Inland Navigation. Nothing was done, however, to improve the river, and the company, after various attempts at shipping coal to Philadelphia, gave up the effort and allowed the property, which was worth millions, to lie idle. In 1807 the Lehigh Coal Mine Company, in another effort to get its wares before the public, granted to Rowland and Butland, a private firm, free right to operate one of its veins of coal; but this operation also resulted in failure. In 1813 the company made a third attempt

and granted to a private concern a lease of the entire property on the condition that ten thousand bushels of coal should be taken to market annually. Difficulties immediately made themselves apparent. No contractor could be found who would haul the output to the Lehigh River for less than four dollars a ton, and the man who accepted those terms lost money. Of five barges filled at Mauch Chunk three went to pieces on the way to Philadelphia. Although the contents of the other two sold for twenty dollars a ton, the proceeds failed to meet expenses, and the operating company threw up the lease.

But it happened that White and Hazard, the wire manufacturers who purchased this Lehigh coal, were greatly pleased with its quality. Believing that coal could be obtained more cheaply from Mauch Chunk than from the mines along the Schuylkill, White, Hauto, and Hazard formed a company, entered into negotiation with the owners of the Lehigh mines, and obtained the lease of their properties for a period of twenty years at an annual rental of one ear of corn. The company agreed, moreover, to ship every year at least forty thousand bushels of coal to Philadelphia for its own consumption, to prove the value of the property.

White and his partners immediately applied to the Legislature for permission to improve the navigation of the Lehigh, stating the purpose of the improvement and citing the fact that their efforts would tend to serve as a model for the improvement of other Pennsylvania streams. The desired opportunity "to ruin themselves," as one member of the Legislature put it, was granted by an act passed March 20, 1818. The various powers applied for, and granted, embraced the whole range of tried and untried methods for securing "a navigation downward once in three days for boats loaded with one hundred barrels, or ten tons." The State kept its weather eye open in this matter, however, for a small minority felt that these men would not ruin themselves. Accordingly, the act of grant reserved to the commonwealth the right to compel the adoption of a complete system of slack-water navigation from Easton to Stoddartsville if the service given by the company did not meet "the wants of the country."

Capital was subscribed by a patriotic public on condition that a committee of stockholders should go over the ground and pass judgment on the probable success of the effort. The report was favorable, so far as the improvement of the river was

concerned; but the nine-mile road to the mines was unanimously voted impracticable. "To give you an idea of the country over which the road is to pass," wrote one of the commissioners, "I need only tell you that I considered it quite an easement when the wheel of my carriage struck a stump instead of a stone." The public mind was divided. Some held that the attempt to operate the coal mine was farcical, but that the improvement of the Lehigh River was an undertaking of great value and of probable profit to investors. Others were just as positive that the river improvement would follow the fate of so many similar enterprises but that a fortune was in store for those who invested in the Lehigh mines.

The direct result of the examiners' report and of the public debate it provoked was the organization of the first interlocking companies in the commercial history of America. The Lehigh Navigation Company was formed with a capital stock of $150,000 and the Lehigh Coal Company with a capital stock of $55,000. This incident forms one of the most striking illustrations in American history of the dependence of a commercial venture upon methods of inland transportation. The Lehigh Navigation Company proceeded to build its

dams and walls while the Lehigh Coal Company constructed the first roadway in America built on the principle — later adopted by the railways — of dividing the total distance by the total descent in order to determine the grade. Not to be outdone in point of ingenuity, the Lehigh Navigation Company, then suffering from an unprecedented dearth of water, adopted White's invention of sluice gates connecting with pools which could be filled with reserve water to be drawn upon as navigation required. By 1819 the necessary depth of water between Mauch Chunk and Easton was obtained. The two companies were immediately amalgamated under the title of the Lehigh Coal and Navigation Company and by 1823 had sent over two thousand tons of coal to market.

As most of the efforts to improve the rivers, however, met with indifferent success and many failures were recorded, the pendulum of public confidence in this aid to inland commerce swung away, and highway improvement by means of stone roads and toll road companies came into favor in the interval between the nation's two eras of river improvement and canal building.

CHAPTER IV

A NATION ON WHEELS

In early days the Indian had not only followed the watercourses in his canoe but had made his way on foot over trails through the woods and over the mountains. In colonial days, Englishman and Frenchman followed the footsteps of the Indian, and as settlement increased and trade developed, the forest path widened into the highway for wheeled vehicles. Massachusetts began the work of road making in 1639 by passing an act which decreed that "the ways" should be six to ten rods wide "in common grounds," thus allowing sufficient room for more than one track. Similar broad "ways" were authorized in New York and Pennsylvania in 1664; stumps and shrubs were to be cut close to the ground, and "sufficient bridges" were to be built over streams and marshy places. Virginia passed legislation for highways at an early date, but it was not until 1662 that strict laws were

enacted with a view to keeping the roads in a permanently good condition. Under these laws surveyors were appointed to establish in each county roads forty feet wide to the church and to the courthouse. In 1700, Pennsylvania turned her local roads over to the county justices, put the King's highway and the main public roads under the care of the governor and his council, and ordered each county to erect bridges over its streams.

The word "roadmaking" was capable of several interpretations. In general, it meant outlining the course for the new thoroughfare, clearing away fallen timber, blazing or notching the trees so that the traveler might not miss the track, and building bridges or laying logs "over all the marshy, swampy, and difficult dirty places."

The streams proved serious obstacles to early traffic. It has been shown already that the earliest routes of animal or man sought the watersheds; the trails therefore usually encountered one stream near its junction with another. At first, of course, fording was the common method of crossing water, and the most advantageous fording places were generally found near the mouths of tributary streams, where bars and islands are frequently formed and where the water is consequently shallow. When

ferries began to be used, they were usually situated just above or below the fords; but when the bridge succeeded the ferry, the primitive bridge builder went back to the old fording place in order to take advantage of the shallower water, bars, and islands. With the advent of improved engineering, the character of river banks and currents was more frequently taken into consideration in choosing a site for a bridge than was the case in the olden times, but despite this fact the bridges of today, generally speaking, span the rivers where the deer or the buffalo splashed his way across centuries ago.

On the broader streams, where fording was impossible and traffic was perforce carried by ferry, the canoe and the keel boat of the earliest days gave way in time to the ordinary "flat" or barge. At first the obligation of the ferryman to the public, though recognized by English law, was ignored in America by legislators and monopolists alike. Men obtained the land on both sides of the rivers at the crossing places and served the public only at their own convenience and at their own charges. In many cases, to encourage the opening of roads or of ferries, national and state authorities made grants of land on the same principle followed in

later days in the case of Western railroads. Such, for instance, was the grant to Ebenezer Zane, at Zanesville, Lancaster, and Chillicothe in the Northwest Territory. These monopolies sometimes were extremely profitable: a descendant of the owners of the famous Ingles ferry across New River, on the Wilderness Road to Kentucky, is responsible for the statement that in the heyday of travel to the Southwest the privilege was worth from $10,000 to $15,000 annually to the family. But as local governments became more efficient, monopolies were abolished and the collection of tolls was taken over by the authorities. The awakening of inland trade is most clearly indicated everywhere by the action of assemblies regarding the operation of ferries, and in general, by the beginning of the eighteenth century, tolls and ferries were being regulated by law.

But neither roads nor ferries were of themselves sufficient to put a nation on wheels. The early polite society of the settled neighborhoods traveled in horse litters, in sedan chairs, or on horseback, the women seated on pillions or cushions behind the saddle riders, while oxcarts and horse barrows brought to town the produce of the outlying farms. Although carts and rude wagons could be built

entirely of wood, there could be no marked advance in transportation until the development of mining in certain localities reduced the price of iron. With the increase of travel and trade, the old world coach and chaise and wain came into use, and iron for tire and brace became an imperative necessity. The connection between the production of iron and the care of highways was recognized by legislation as early as 1732, when Maryland excused men and slaves in the ironworks from labor on the public roads, though by the middle of the century owners of ironworks were obliged to detail one man out of every ten in their employ for such work.

While the coastwise trade between the colonies was still preëminently important as a means of transporting commodities, by the beginning of the eighteenth century the land routes from New York to New England, from New York across New Jersey to Philadelphia, and those radiating from Philadelphia in every direction, were coming into general use. The date of the opening of regular freight traffic between New York and Philadelphia is set by the reply of the Governor of New Jersey in 1707 to a protest against monopolies granted on one of the old widened Indian trails between Burlington and Amboy. "At present," he says,

"everybody is sure, *once a fortnight*, to have an opportunity of sending any quantity of goods, great or small, at reasonable rates, without being in danger of imposition; and the sending of this wagon is so far from being a grievance or monopoly, *that by this means and no other*, a trade has been carried on between Philadelphia, Burlington, Amboy, and New York, which was never known before."

The long Philadelphia Road from the Lancaster region into the Valley of Virginia, by way of Wadkins on the Potomac, was used by German and Irish traders probably as early as 1700. In 1728 the people of Maryland were petitioning for a road from the ford of the Monocacy to the home of Nathan Wickham. Four years later Jost Heydt, leading an immigrant party southward, broke open a road from the York Barrens toward the Potomac two miles above Harper's Ferry. This avenue — by way of the Berkeley, Staunton, Watauga, and Greenbrier regions to Tennessee and Kentucky — was the longest and most important in America during the Revolutionary period. The Virginia Assembly in 1779 appointed commissioners to view this route and to report on the advisability of making it a wagon road all the way to Kentucky.

In 1795, efforts were made in Kentucky to turn the Wilderness Trail into a wagon road, and in this same year the Kentucky Legislature passed an act making the route from Crab Orchard to Cumberland Gap a wagon road thirty feet in width.

From Pennsylvania and from Virginia commerce westward bound followed in the main the army roads hewn out by Braddock and Forbes in their campaigns against Fort Duquesne. In 1755, Braddock, marching from Alexandria by way of Fort Cumberland, had opened a passage for his artillery and wagons to Laurel Hill, near Uniontown, Pennsylvania. His force included a corps of seamen equipped with block and tackle to raise and lower his wagons in the steep inclines of the Alleghanies. Three years later, Forbes, in his careful, dogged campaign, followed a more northerly route. Advancing from Philadelphia and Carlisle, he established Fort Bedford and Fort Ligonier as bases of supply and broke a new road through the interminable forest which clothed the rugged mountain ranges. From the first there was bitter rivalry between these two routes, and the young Colonel Washington was roundly criticized by both Forbes and Bouquet, his second in command, for his partisan effort to "drive me down," as Forbes

phrased it, into the Virginia or Braddock's Road. This rivalry between the two routes continued when the destruction of the French power over the roads in the interior threw open to Pennsylvania and her southern neighbors alike the lucrative trade of the Ohio country.

From the journals of the time may be caught faint glimpses of the toils and dangers of travel through these wild hill regions. Let the traveler of today, as he follows the track that once was Braddock's Road, picture the scene of that earlier time when, in the face of every natural obstacle, the army toiled across the mountain chains. Where the earth in yonder ravine is whipped to a black froth, the engineers have thrown down the timber cut in widening the trail and have constructed a corduroy bridge, or rather a loose raft on a sea of muck. The wreck of the last wagon which tried to pass gives some additional safety to the next. Already the stench from the horse killed in the accident deadens the heavy, heated air of the forest. The sailors, stripped to the waist, are ready with ropes and tackle to let the next wagon down the incline; the pulleys creak, the ropes groan. The horses, weak and terror-stricken, plunge and rear; in the final crash to the level the leg of the wheel horse is

caught and broken; one of the soldiers shoots the animal; the traces are unbuckled; another beast is substituted. Beyond, the seamen are waiting with tackle attached to trees on the ridge above to assist the horses on the cruel upgrade — and Braddock, the deceived, maligned, misrepresented, and misjudged, creeps onward in his brave conquest of the Alleghanies in a campaign that, in spite of its military failure, deserves honorable mention among the achievements of British arms.

Everywhere, north and south, the early American road was a veritable Slough of Despond. Watery pits were to be encountered wherein horses were drowned and loads sank from sight. Frequently traffic was stopped for hours by wagons which had broken down and blocked the way. Thirteen wagons at one time were stalled on Logan's Hill on the York Road. Frightful accidents occurred in attempting to draw out loads. Jonathan Tyson, for instance, in 1792, near Philadelphia saw a horse's lower jaw torn off by the slipping of a chain. Save in the winter, when in the northern colonies snow filled the ruts and frost built solid bridges over the streams, travel on these early roads was never safe, rapid, nor comfortable. The comparative ease of winter travel for the carriage of heavy

freight and for purposes of trade and social intercourse gave the colder regions an advantage over the southern that was an important factor in the development of the country.

No genuine improvement of roads and highways seems to have been attempted until the era heralded by Washington's letter to Harrison in 1784. But the problem slowly forced itself upon all sections of the country, and especially upon Pennsylvania and Maryland, whose inhabitants began to fear lest New York, Alexandria, or Richmond should snatch the Western trade from Philadelphia or Baltimore. The truth that underlies the proverb that "history repeats itself" is well illustrated by the fact that the first macadamized road in America was built in Pennsylvania, for here also originated the pack-horse trade and the Conestoga horse and wagon; here the first inland American canal was built, the first roadbed was graded on the principle of dividing the whole distance by the whole descent, and the first railway was operated. Macadam and Telford had only begun to show the people of England how to build roads of crushed stone — an art first developed by the French engineer Trésaguet — when Pennsylvanians built the Lancaster Turnpike. The Philadelphia and

Lancaster Turnpike Road Company was chartered April 9, 1792, as a part of the general plan of the Society for the Improvement of Roads and Inland Navigation already described. This road, sixty-two miles in length, was built of stone at a cost of $465,000 and was completed in two years. Never before had such a sum been invested in internal improvement in the United States. The rapidity with which the undertaking was carried through and the profits which accrued from the investment were alike astonishing. The subscription books were opened at eleven o'clock one morning and by midnight 2226 shares had been subscribed, each purchaser paying down thirty dollars. At the same time Elkanah Watson was despondently scanning the subscription books of his Mohawk River enterprise at Albany where "no mortal" had risked more than two shares.

The success of the Lancaster Turnpike was not achieved without a protest against the monopoly which the new venture created. It is true that in all the colonies the exercise of the right of eminent domain had been conceded in a veiled way to officials to whose care the laying out of roads had been delegated. As early as 1639 the General Court of Massachusetts had ordered each town to

choose men who, coöperating with men from the adjoining town, should "lay out highways where they may be most convenient, notwithstanding any man's property, or any corne ground, so as it occasion not the pulling down of any man's house, or laying open any garden or orchard." But the open and extended exercise of these rights led to vigorous opposition in the case of this Pennsylvania road. A public meeting was held at the Prince of Wales Tavern in Philadelphia in 1793 to protest in round terms against the monopolistic character of the Lancaster Turnpike. Blackstone and Edward III were hurled at the heads of the "venal" legislators who had made this "monstrosity" possible. The opposition died down, however, in the face of the success which the new road instantly achieved. The Turnpike was, indeed, admirably situated. Converging at the quaint old "borough of Lancaster," the various routes — northeast from Virginia, east from the Carlisle and Chambersburg region and the Alleghanies, and southeast from the upper Susquehanna country — poured upon the Quaker City a trade that profited every merchant, landholder, and laborer. The nine tollgates, on the average a little less than seven miles apart, turned in a revenue that allowed the "President

and Managers" to declare dividends to stockholders running, it is said, as high as fifteen per cent.

The Lancaster Turnpike is interesting from three points of view: it began a new period of American transportation; it ushered in an era of speculation unheard of in the previous history of the country; and it introduced American lawmakers to the great problem of controlling public corporations.

Along this thirty-seven-foot road, of which twenty-four feet were laid with stone, the new era of American inland travel progressed. The array of two-wheeled private equipages and other family carriages, the stagecoaches of bright color, and the carts, Dutch wagons, and Conestogas, gave token of what was soon to be witnessed on the great roads of a dozen States in the next generation. Here, probably, the first distinction began to be drawn between the taverns for passengers and those patronized by the drivers of freight. The colonial taverns, comparatively few and far between, had up to this time served the traveling public, high and low, rich and poor, alike. But in this new era members of Congress and the élite of Philadelphia and neighboring towns were not to be jostled at the table by burly hostlers, drivers, wagoners, and hucksters. Two types of inns thus came quickly

into existence: the tavern entertained the stage-coach traffic, while the democratic roadhouse served the established lines of Conestogas, freighters, and all other vehicles which poured from every town, village, and hamlet upon the great thoroughfare leading to the metropolis on the Delaware.

Among American inventions the Conestoga wagon must forever be remembered with respect. Originating in the Lancaster region of Pennsylvania and taking its name either from the horses of the Conestoga Valley or from the valley itself, this vehicle was unlike the old English wain or the Dutch wagon because of the curve of its bed. This peculiarly shaped bottom, higher by twelve inches or more at each end than in the middle, made the vehicle a safer conveyance across the mountains and over all rough country than the old straight-bed wagon. The Conestoga was covered with canvas, as were other freight vehicles, but the lines of the bed were also carried out in the framework above and gave the whole the effect of a great ship swaying up and down the billowy hills. The wheels of the Conestoga were heavily built and wore tires four and six inches in width. The harness of the six horses attached to the wagon was proportionately heavy, the back bands being fifteen

inches wide, the hip straps ten, and the traces consisting of ponderous iron chains. The color of the original Conestoga wagons never varied: the underbody was always blue and the upper parts were red. The wagoners and drivers who manned this fleet on wheels were men of a type that finds no parallel except in the boatmen on the western rivers who were almost their contemporaries. Fit for the severest toil, weathered to the color of the red man, at home under any roof that harbored a demijohn and a fiddle, these hardy nomads of early commerce were the custodians of the largest amount of traffic in their day.

The turnpike era overlaps the period of the building of national roads and canals and the beginning of the railway age, but it is of greatest interest during the first twenty-five years of the nineteenth century, up to the time when the completion of the Erie Canal set new standards. During this period roads were also constructed westward from Baltimore and Albany to connect, as the Lancaster Turnpike did at its terminus, with the thoroughfares from the trans-Alleghany country. The metropolis of Maryland was quickly in the field to challenge the bid which the Quaker City made for western trade. The Baltimore-Reisterstown and

Baltimore-Frederick turnpikes were built at a cost of $10,000 and $8000 a mile respectively; and the latter, connecting with roads to Cumberland, linked itself with the great national road to Ohio which the Government built between 1811 and 1817. These famous stone roads of Maryland long kept Baltimore in the lead as the principal outlet for the western trade. New York, too, proved her right to the title of Empire State by a marvelous activity in improving her magnificent strategic position. In the first seven years of the nineteenth century eighty-eight incorporated road companies were formed with a total capital of over $8,000,000. Twenty large bridges and more than three thousand miles of turnpike were constructed. The movement, indeed, extended from New England to Virginia and the Carolinas, and turnpike companies built all kinds of roads — earth, corduroy, plank, and stone.

In many cases the kind of road to be constructed, the tolls to be charged, and the amount of profit to be permitted, were laid down in the charters. Thus new problems confronted the various legislatures, and interesting principles of regulation were now established. In most cases companies were allowed, on producing their books of receipts and

expenditures, to increase their tolls until they obtained a profit of six per cent on the investment, though in a number of cases nine per cent was permitted. When revenues increased beyond the six per cent mark, however, the tendency was to reduce tolls or to use the extra profit to purchase the stock for the State, with the expectation of ultimately abolishing tollgates entirely. The theories of state regulation of corporations and the obligations of public carriers, extending even to the compensation of workmen in case of accident, were developed to a considerable degree in this turnpike era; but, on the other hand, the principle of permitting fair profit to corporations upon public examination of their accounts was also recognized.

The stone roads, which were passable at all seasons, brought a new era in correspondence and business. Lines of stages and wagons, as well known at that time as are the great railways of today, plied the new thoroughfares, provided some of the comforts of travel, and assured the safer and more rapid delivery of goods. This period is sometimes known in American history as "The Era of Good Feeling" and the turnpike contributed in no small degree to make the phrase applicable not

only to the domain of politics but to all the relations of social and commercial life.

While road building in the East gives a clear picture of the rise and growth of commerce and trade in that section, it is to the rivers of the trans-Alleghany country that we must look for a corresponding picture in this early period. The canoe and pirogue could handle the packs and kegs brought westward by the files of Indian ponies; but the heavy loads of the Conestoga wagons demanded stancher craft. The flatboat and barge therefore served the West and its commerce as the Conestoga and turnpike served the East.

CHAPTER V

THE FLATBOAT AGE

In the early twenties of the last century one of the popular songs of the day was *The Hunters of Kentucky*. Written by Samuel Woodworth, the author of *The Old Oaken Bucket*, it had originally been printed in the New York *Mirror* but had come into the hands of an actor named Ludlow, who was playing in the old French theater in New Orleans. The poem chants the praises of the Kentucky riflemen who fought with Jackson at New Orleans and indubitably proved

> That every man was half a horse
> And half an alligator.

Ludlow knew his audience and he saw his chance. Setting the words to Risk's tune, *Love Laughs at Locksmiths*, donning the costume of a Western riverman, and arming himself with a long "squirrel" rifle, he presented himself before the house. The

rivermen who filled the pit received him, it is related, with "a prolonged whoop, or howl, such as Indians give when they are especially pleased." And to these sturdy men the words of his song made a strong appeal:

> We are a hardy, freeborn race,
> Each man to fear a stranger;
> Whate'er the game, we join in chase,
> Despising toil and danger;
> And if a daring foe annoys,
> No matter what his force is,
> We'll show him that Kentucky boys
> Are Alligator-horses.

The title "alligator-horse," of which Western rivermen were very proud, carried with it a suggestion of amphibious strength that made it both apt and figuratively accurate. On all the American rivers, east and west, a lusty crew, collected from the waning Indian trade and the disbanded pioneer armies, found work to its taste in poling the long keel boats, "cordelling" the bulky barges — that is, towing them by pulling on a line attached to the shore — or steering the "broadhorns" or flatboats that transported the first heavy inland river cargoes. Like longshoremen of all ages, the American riverman was as rough as the work which

calloused his hands and transformed his muscles into bands of tempered steel. Like all men given to hard but intermittent labor, he employed his intervals of leisure in coarse and brutal recreation. Their roistering exploits, indeed, have made these rivermen almost better known at play than at work. One of them, the notorious Mike Fink, known as "the Snag" on the Mississippi and as the "Snapping Turtle" on the Ohio, has left the record, not that he could load a keel boat in a certain length of time, or lift a barrel of whiskey with one arm, or that no tumultuous current had ever compelled him to back water, but that he could "out-run, out-hop, out-jump, throw down, drag out, and lick any man in the country," and that he was "a Salt River roarer."

Such men and the craft they handled were known on the Atlantic rivers, but it was on the Mississippi and its branches, especially the Ohio, that they played their most important part in the history of American inland commerce. Before the beginning of the nineteenth century wagons and Conestogas were bringing great loads of merchandise to such points on the headwaters as Brownsville, Pittsburgh, and Wheeling. As early as 1782, we are told, Jacob Yoder, a Pennsylvania German,

set sail from the Monongahela country with the first flatboat to descend the Ohio and Mississippi. As the years passed, the number of such craft grew constantly larger. The custom of fixing the wide-spreading horns of cattle on the prow gave these boats the alternative name of "broadhorns," but no accurate classification can be made of the various kinds of craft engaged in this vast traffic. Everything that would float, from rough rafts to finished barges, was commandeered into service, and what was found unsuitable for the strenuous purposes of commercial transportation was palmed off whenever possible on unsuspecting emigrants *en route* to the lands of promise beyond.

Flour, salt, iron, cider and peach brandy were staple products of the Ohio country which the South desired. In return they shipped molasses, sugar, coffee, lead, and hides upon the few keel boats which crept upstream or the blundering barges which were propelled northward by means of oar, sail, and cordelle. It was not, however, until the nineteenth century that the young West was producing any considerable quantity of manufactured goods. Though the town of Pittsburgh had been laid out in 1764, by the end of the Revolution it was still little more than a collection of huts

about a fort. A notable amount of local trade was carried on, but the expense of transportation was very high even after wagons began crossing the Alleghanies. For example, the cost from Philadelphia and Baltimore was given by Arthur Lee, a member of Congress, in 1784 as forty-five shillings a hundredweight, and a few months later it is quoted at sixpence a pound when Johann D. Schoph crossed the mountains in a chaise — a feat "which till now had been considered quite impossible." Opinions differed widely as to the future of the little town of five hundred inhabitants. The important product of the region at first was Monongahela flour which long held a high place in the New Orleans market. Coal was being mined as early as 1796 and was worth locally threepence halfpenny a bushel, though within seven years it was being sold at Philadelphia at thirty-seven and a half cents a bushel. The fur trade with the Illinois country grew less important as the century came to its close, but Maynard and Morrison, cooperating with Guy Bryan at Philadelphia, sent a barge laden with merchandise to Illinois annually between 1790 and 1796, which returned each season with a cargo of skins and furs. Pittsburgh was thus a distributing center of some importance;

but the fact that no drayman or warehouse was to be found in the town at this time is a significant commentary on the undeveloped state of its commerce and manufacture.

After Wayne's victory at the battle of the Fallen Timber in 1794 and the signing of the Treaty of Greenville in 1795, which ended the earlier Indian wars of the Old Northwest and opened for settlement the country beyond the Ohio, a great migration followed into Ohio, Indiana, and Kentucky, and the commercial activity of Pittsburgh rapidly increased. By 1800 a score of profitable industries had arisen, and by 1803 the first bar-iron foundry was, to quote the advertisement of its owner, "sufficiently upheld by the hand of the Almighty" to supply in part the demand for iron and castings. Glass factories were established, and ropewalks, sail lofts, boatyards, anchor smithies, and brickyards, were soon ready to supply the rapidly increasing demands of the infant cities and the countryside on the lower Ohio. When the new century arrived the Pittsburgh district had a population of upwards of two thousand.

One by one the other important centers of trade in the great valley beyond began to show evidences of life. Marietta, Ohio, founded in 1788 by

Revolutionary officers from New England, became the metropolis of the rich Muskingum River district, which was presently sending many flatboats southward. Cincinnati was founded in the same year as Marietta, with the building of Fort Washington and the formal organization of Hamilton County. The soil of the Miami country was as "mellow as an ash heap" and in the first four months of 1802 over four thousand barrels of flour were shipped southward to challenge the prestige of the Monongahela product. Potters, brickmakers, gunsmiths, cotton and wool weavers, coopers, turners, wheelwrights, dyers, printers, and ropemakers were at work here within the next decade. A brewery turned out five thousand barrels of beer and porter in 1811, and by the next year the pork-packing business was thoroughly established.

Louisville, the "Little Falls" of the West, was the entrepôt of the Blue Grass region. It had been a place of some importance since Revolutionary days, for in seasons of low water the rapids in the Ohio at this point gave employment to scores of laborers who assisted the flatboatmen in hauling their cargoes around the obstruction which prevented the passage of the heavily loaded barges.

The town, which was incorporated in 1780, soon showed signs of commercial activity. It was the proud possessor of a drygoods house in 1783. The growth of its tobacco industry was rapid from the first. The warehouses were under government supervision and inspection as early as 1795, and innumerable flatboats were already bearing cargoes of bright leaf southward in the last decade of the century. The first brick house in Louisville was erected in 1789 with materials brought from Pittsburgh. Yankees soon established the "Hope Distillery"; and the manufacture of whiskey, which had long been a staple industry conducted by individuals, became an incorporated business of great promise in spite of objections raised against the "creation of gigantic reservoirs of this damning drink."

Thus, about the year 1800, the great industries of the young West were all established in the regions dominated by the growing cities of Pittsburgh, Cincinnati, and Louisville. But, since the combined population of these centers could not have been over three thousand in the year 1800, it is evident that the adjacent rural population and the people living in every neighboring creek and river valley were chiefly responsible for the large

trade that already existed between this corner of the Mississippi basin and the South.

In this trade the riverman was the fundamental factor. Only by means of his brawn and his genius for navigation could these innumerable tons of flour, tobacco, and bacon have been kept from rotting on the shores. Yet the man himself remains a legend grotesque and mysterious, one of the shadowy figures of a time when history was being made too rapidly to be written. If we ask how he loaded his flatboat or barge, we are told that "one squint of his eye would blister a bull's heel." When we inquire how he found the channel amid the shifting bars and floating islands of that tortuous two-thousand-mile journey to New Orleans, we are informed that he was "the very infant that turned from his mother's breast and called out for a bottle of old rye." When we ask how he overcame the natural difficulties of trade — lack of commission houses, varying standards of money, want of systems of credit and low prices due to the glutting of the market when hundreds of flatboats arrived in the South simultaneously on the same freshet — we are informed that "Billy Earthquake is the geniwine, double-acting engine, and can out-run, out-swim, chaw more tobacco

and spit less, drink more whiskey and keep soberer than any other man in these localities."

The reason for this lack of information is that our descriptions of flatboating and keel boating are written by travelers who, as is always the case, are interested in what is unusual, not in what is typical and commonplace. It is therefore only dimly, as through a mist, that we can see the two lines of polemen pass from the prow to the stern on the narrow running-board of a keel boat, lifting and setting their poles to the cry of steersman or captain. The struggle in a swift "riffle" or rapid is momentous. If the craft swerves, all is lost. Shoulders bend with savage strength; poles quiver under the tension; the captain's voice is raucous, and every other word is an oath; a pole breaks, and the next man, though half-dazed in the mortal crisis, does for a few moments the work of two. At last they reach the head of the rapid, and the boat floats out on the placid pool above, while the "alligator-horse" who had the mishap remarks to the scenery at large that he'd be "fly-blowed before sun-down to a certingty" if that were not the very pole with which he "pushed the broadhorn up Salt River where the snags were so thick that a fish couldn't swim without rubbing his scales off."

Audubon, the naturalist-merchant of the Mississippi, has left us a clear picture of the process by which these heavy tubs, loaded with forty or fifty tons of freight, were forced upstream against a swift current:

Wherever a point projected so as to render the course or bend below it of some magnitude, there was an eddy, the returning current of which was sometimes as strong as that of the middle of the great stream. The bargemen, therefore, rowed up pretty close under the bank and had merely to keep watch in the bow lest the boat should run against a planter or sawyer. But the boat has reached the point, and there the current is to all appearance of double strength and right against it. The men, who have rested a few minutes, are ordered to take their stations and lay hold of their oars, for the river must be crossed, it being seldom possible to double such a point and proceed along the same shore. The boat is crossing, its head slanting to the current, which is, however, too strong for the rowers, and when the other side of the river has been reached, it has drifted perhaps a quarter of a mile. The men are by this time exhausted and, as we shall suppose it to be 12 o'clock, fasten the boat to a tree on the shore. A small glass of whiskey is given to each, when they cook and eat their dinner and, after resting from their fatigue for an hour, recommence their labors. The boat is again seen slowly advancing against the stream. It has reached the lower end of a sandbar, along the edge of which it is propelled by

means of long poles, if the bottom be hard. Two men, called bowsmen, remain at the prow to assist, in concert with the steersman, in managing the boat and keeping its head right against the current. The rest place themselves on the land side of the footway of the vessel, put one end of their poles on the ground and the other against their shoulders and push with all their might. As each of the men reaches the stern, he crosses to the other side, runs along it and comes again to the landward side of the bow, when he recommences operations. The barge in the meantime is ascending at a rate not exceeding one mile in the hour.

Trustworthy statistics as to the amount and character of the Western river trade have never been gathered. They are to be found, if anywhere, in the reports of the collectors of customs located at the various Western ports of entry and departure. Nothing indicates more definitely the hour when the West awoke to its first era of big business than the demand for the creation of "districts" and their respective ports, for by no other means could merchandise and produce be shipped legally to Spanish territory beyond or down the Mississippi or to English territory on the northern shores of the Great Lakes.

Louisville is as old a port of the United States as New York or Philadelphia, having been so

created when our government was established in 1789, but oddly enough the first returns to the National Treasury (1798) are credited to the port of Palmyra, Tennessee, far inland on the Cumberland River. In 1799 the following Western towns were made ports of entry: Erie, Sandusky, Detroit, Mackinaw Island, and Columbia (Cincinnati). The first port on the Ohio to make returns was Fort Massac, Illinois, and it is from the collector at this point that we get our first hint as to the character and volume of Western river traffic. In the spring months of March, April, and May, 1800, cargoes to the value of £28,581, Pennsylvania currency, went down the Ohio. This included 22,714 barrels of flour, 1017 barrels of whiskey, 12,500 pounds of pork, 18,710 pounds of bacon, 75,814 pounds of cordage, 3650 yards of country linen, 700 bottles, and 700 barrels of potatoes. In the three autumn months of 1800, for instance, twenty-one boats ascended the Ohio by Fort Massac, with cargoes amounting to 36 hundredweight of lead and a few hides. Descending the river at the same time, flatboats and barges carried 245 hundredweight of drygoods valued at $32,550. When we compare these spring and fall records of commerce downstream we reach the natural

conclusion that the bulk of the drygoods which went down in the fall of the year had been brought over the mountains during the summer. The fact that the Alleghany pack-horses and Conestogas were transporting freight to supply the Spanish towns on the Mississippi River in the first year of the nineteenth century seems proved beyond a doubt by these reports from Fort Massac.

The most interesting phase of this era is the connection between western trade and the politics of the Mississippi Valley which led up to the Louisiana Purchase. By the Treaty of San Lorenzo in 1795 Spain made New Orleans an open port, and in the next seven years the young West made the most of its opportunity. But before the new century was two years old the difficulties encountered were found to be serious. The lack of commission merchants, of methods of credit, of information as to the state of the market, all combined to handicap trade and to cause loss. Pittsburgh shippers figured their loss already at $60,000 a year. In consequence men began to look elsewhere, and an advocate of big business wrote in 1802: "The country has received a shock; let us immediately extend our views and direct our efforts to every foreign market."

One of the most remarkable plans for the capture of foreign trade to be found in the annals of American commerce originated almost simultaneously in the Muskingum and Monongahela regions. With a view to making the American West independent of the Spanish middlemen, it was proposed to build ocean-going vessels on the Ohio that should carry the produce of the interior down the Mississippi and thence abroad through the open port of New Orleans. The idea was typically Western in its arrogant originality and confident self-assertion. Two vessels were built: the brig *St. Clair*, of 110 tons, at Marietta, and the *Monongahela Farmer*, of 250 tons, at Elizabeth on the Monongahela. The former reached Cincinnati April 27, 1801; the latter, loaded with 750 barrels of flour, passed Pittsburgh on the 13th of May. Eventually, the *St. Clair* reached Havana and thus proved that Muskingum Valley black walnut, Ohio hemp, and Marietta carpenters, anchor smiths, and skippers could defy the grip of the Spaniard on the Mississippi. Other vessels followed these adventurers, and shipbuilding immediately became an important industry at Pittsburgh, Marietta, Cincinnati, and other points. The *Duane* of Pittsburgh was said by the Liverpool

Saturday Advertiser of July 9, 1803, to have been the "first vessel which ever came to Europe from the western waters of the United States." Probably the *Louisiana of Marietta* went as far afield as any of the one hundred odd ships built in these years on the Ohio. The official papers of her voyage in 1805, dated at New Orleans, Norfolk (Virginia), Liverpool, Messina, and Trieste at the head of the Adriatic, are preserved today in the Marietta College Library.

The growth of the shipbuilding industry necessitated a readjustment of the districts for the collection of customs. Columbia (Cincinnati) at first served the region of the upper Ohio; but in 1803 the district was divided and Marietta was made the port for the Pittsburgh-Portsmouth section of the river. In 1807 all the western districts were amalgamated, and Pittsburgh, Charleston (Wellsburg), Marietta, Cincinnati, Louisville, and Fort Massac were made ports of entry.

The Louisiana Purchase in 1803 gave a marked impulse to inland shipbuilding; but the embargo of 1807, which prohibited foreign trade, following so soon, killed the shipyards, which, for a few years, had been so busy. The great new industry of the Ohio Valley was ruined.

By this time the successful voyage of Fulton's steamboat, the *Clermont*, between New York and Albany, had demonstrated the possibilities of steam navigation. Not a few men saw in the novel craft the beginning of a new era in Western river traffic; but many doubted whether it was possible to construct a vessel powerful enough to make its way upstream against such sweeping currents as those of the Mississippi and the Ohio. Surely no one for a moment dreamed that in hardly more than a generation the Western rivers would carry a tonnage larger than that of the cities of the Atlantic seaboard combined and larger than that of Great Britain!

As early as 1805, two years before the trip of the *Clermont*, Captain Keever built a "steamboat" on the Ohio, and sent her down to New Orleans where her engine was to be installed. But it was not until 1811 that the *Orleans*, the first steamboat to ply the Western streams, was built at Pittsburgh, from which point she sailed for New Orleans in October of that year. The *Comet* and *Vesuvius* quickly followed, but all three entered the New Orleans-Natchez trade on the lower river and were never seen again at the headwaters. As yet the swift currents and flood tides of the great river

had not been mastered. It is true that in 1815 the *Enterprise* had made two trips between New Orleans and Louisville, but this was in time of high water, when counter currents and backwaters had assisted her feeble engine. In 1816, however, Henry Shreve conceived the idea of raising the engine out of the hold and constructing an additional deck. The *Washington*, the first double-decker, was the result. The next year this steamboat made the round trip from Louisville to New Orleans and back in forty-one days. The doubters were now convinced.

For a little while the quaint and original riverman held on in the new age, only to disappear entirely when the colored roustabout became the deckhand of post-bellum days. The riverman as a type was unknown except on the larger rivers in the earlier years of water traffic. What an experience it would be today to rouse one of those remarkable individuals from his dreaming, as Davy Crockett did, with an oar, and hear him howl "Halloe stranger, who axed you to crack my lice?" — to tell him in his own lingo to "shut his mouth or he would get his teeth sunburnt" — to see him crook his neck and neigh like a stallion — to answer his challenge in kind with a flapping of

arms and a cock's crow — to go to shore and have a scrimmage such as was never known on a grid-iron — and then to resolve with Crockett, during a period of recuperation, that you would never "wake up a ring-tailed roarer with an oar again."

The riverman, his art, his language, his traffic, seem to belong to days as distant as those of which Homer sang.

CHAPTER VI

THE PASSING SHOW OF 1800

FOREIGN travelers who have come to the United States have always proved of great interest to Americans. From Brissot to Arnold Bennett, while in the country they have been fed and clothed and transported wheresoever they would go — at the highest prevailing prices. And after they have left, the records of their sojourn that these travelers have published have made interesting reading for Americans all over the land. Some of these trans-Atlantic visitors have been jaundiced, disgruntled, and contemptuous; others have shown themselves of an open nature, discreet, conscientious, and fair-minded.

One of the most amiable and clear-headed of such foreign guests was Francis Baily, later in life president of the Royal Astronomical Society of Great Britain, but at the time of his American tour a young man of twenty-two. His journey in

1796–97 gave him a wide experience of stage, flatboat, and pack-horse travel, and his genial disposition, his observant eye, and his discriminating criticism, together with his comments on the commercial features of the towns and regions he visited, make his record particularly interesting and valuable to the historian.[1] Using Baily's journal as a guide, therefore, one can today journey with him across the country and note the passing show as he saw it in this transitional period.

Landing at Norfolk, Virginia, Baily was immediately introduced to an American tavern. Like most travelers, he was surprised to find that American taverns were "boarding-places," frequented by crowds of "young, able-bodied men who seemed to be as perfectly at leisure as the loungers of ancient Europe." In those days of few newspapers, the tavern everywhere in America was the center of information; in fact, it was a common practice for travelers in the interior, after signing their names in the register, to add on the same page any news of local interest which they brought with them. The tavern habitués, Baily remarks, did not sit and drink after meals but "wasted" their

[1] *Journal of a Tour in Unsettled Parts of North America in 1796 and 1797* by the late Francis Baily (London, 1856).

time at billiards and cards. The passion for billiards was notorious, and taverns in the most out-of-the-way places, though they lacked the most ordinary conveniences, were nevertheless provided with billiard tables. This custom seems to have been especially true in the South; and it is significant that the first taxes in Tennessee levied before the beginning of the nineteenth century were the poll tax and taxes on billiard tables and studhorses!

From Norfolk Baily passed northward to Baltimore, paying a fare of ten dollars, and from there he went on to Philadelphia, paying six dollars more. On the way his stagecoach stuck fast in a bog and the passengers were compelled to leave it until the next morning. This sixty-mile road out of Baltimore was evidently one of the worst in the East. Ten years prior to this date, Brissot, a keen French journalist, mentions the great ruts in its heavy clay soil, the overturned trees which blocked the way, and the unexampled skilfulness of the stage drivers. All travelers in America, though differing on almost every other subject, invariably praise the ability of these sturdy, weather-beaten American drivers, their kindness to their horses, and their attention to their passengers. Harriet Martineau stated that, in her experience, American drivers as a class

were marked by the merciful temper which accompanies genius, and their perfection in their art, their fertility of resource, and the gentleness with which they treated female fears and fretfulness, were exemplary.

In the City of Brotherly Love Baily notes the geniality of the people, who by many travelers are called aristocratic, and comments on Quaker opposition to the theater and the inconsequence of the Peale Museum, which travelers a generation later highly praise. Proceeding to New York at a cost of six dollars, he is struck by the uncouthness of the public buildings, churches excepted, the widespread passion for music, dancing, and the theater, the craze for sleighing, and the promise which the harbor gave of becoming the finest in America. Not a few travelers in this early period gave expression to their belief in the future greatness of New York City. These prophecies, taken in connection with the investment of eight millions of dollars which New Yorkers made in toll-roads in the first seven years of this new century, incline one to believe that the influence of the Erie Canal as a factor in the development of the city may have been unduly emphasized, great though it was.

From New York Baily returned to Baltimore

and went on to Washington. The records of all travelers to the site of the new national capital give much the same picture of the countryside. It was a land worn out by tobacco culture and variously described as "dried up," "run down," and "hung out to dry." Even George Washington, at Mount Vernon, was giving up tobacco culture and was attempting new crops by a system of rotation. Cotton was being grown in Maryland, but little care was given to its culture and manufacture. Tobacco was graded in Virginia in accordance with the rigidity of its inspection at Hanover Court House, Pittsburgh, Richmond, and Cabin-Point: leaf worth sixteen shillings at Richmond was worth twenty-one at Hanover Court House; if it was refused at all places, it was smuggled to the West Indies or consumed in the country. Meadows were rapidly taking the place of tobacco-fields, for the planters preferred to clear new land rather than to enrich the old.

At Washington Baily found that lots to the value of $278,000 had been sold, although only one-half of the proposed city had been "cleared." It was to be forty years ere travelers could speak respectfully of what is now the beautiful city of Washington. In these earlier days, the streets

were mudholes divided by vacant fields and "beautified by trees, swamps, and cows."

Departing for the West by way of Frederick, Baily, like all travelers, was intensely interested upon entering the rich limestone region which stretched from Pennsylvania far down into Virginia. It was occupied in part by the Pennsylvania Dutch and was so famous for its rich milk that it was called by many travelers the "Bonnyclabber Country." Most Englishmen were delighted with this region because they found here the good old English breed of horses, that is, the English hunter developed into a stout coach-horse. Of native breeds, Baily found animals of all degrees of strength and size down to hackneys of fourteen hands, as well as the "vile dog-horses," or pack-horses, whose faithful service to the frontier could in no wise be appreciated by a foreigner.

This region of Pennsylvania was as noted for its wagons as for its horses. It was this wheat-bearing belt that made the common freight-wagon in its colors of red and blue a national institution. It was in this region of rich, well-watered land that the maple tree gained its reputation. Men even prophesied that its delightful sap would prove a cure for slavery, for, if one family could make

fifteen hundred pounds of maple sugar in a season, eighty thousand families could, at the same rate, equal the output of cane sugar each year from Santo Domingo!

The traveler at the beginning of the century noticed a change in the temper of the people as well as a change in the soil when the Bonnyclabber Country was reached. The time-serving attitude of the good people of the East now gave place to a "consciousness of independence" due, Baily remarks, to the fact that each man was self-sufficient and passed his life "without regard to the smiles and frowns of men in power." This spirit was handsomely illustrated in the case of one burly Westerner who was "churched" for fighting. Showing a surly attitude to the deacon-judges who sat on his case, he was threatened with civil prosecution and imprisonment. "I don't want freedom," he is said to have replied, bitterly; "I don't even want to live if I can't knock down a man who calls me a liar."

Pushing on westward by way of historic Sideling Hill and Bedford to Statlers, Baily found here a prosperous millstone quarry, which sold its stones at from fifteen to thirty dollars a pair. Twelve years earlier Washington had prophesied that the

Alleghanies would soon be furnishing millstones equal to the best English burr. As he crossed the mountains Baily found that taverns charged the following schedule: breakfast, eighteen pence; dinner and supper from two shillings to two shillings and sixpence each. Traversing Laurel Hill, he reached Pittsburgh just at the time when it was awakening to activity as the trading center of the West.

In order to descend the Ohio, Baily obtained a flatboat, thirty-six feet long and twelve feet broad, which drew eighteen inches of water and was of ten tons burden. On the way downstream, Charleston and Wheeling were the principal settlements which Baily first noted. Ebenezer Zane, the founder of Wheeling, had just opened across Ohio the famous landward route from the Monongahela country to Kentucky, which it entered at Limestone, the present Maysville. This famous road, passing through Zanesville, Lancaster, and Chillicothe, though at that time safe only for men in parties, was a common route to and from Kentucky.

On such inland pathways as this, early travelers came to take for granted a hospitality not to be found on more frequented thoroughfares. In this hospitality, roughness and good will, cleanliness

and filth, attempts to ape the style of Eastern towns and habits of the most primitive kind, were singularly blended. In one instance, the traveler might be cordially assigned by the landlord to a good position in "the first rush for a chance at the head of the table"; at the next stopping place he might be coldly turned away because the proprietor "had the gout" and his wife the "delicate blue-devils"; farther on, where "soap was unknown, nothing clean but birds, nothing industrious but pigs, and nothing happy but squirrels," Daniel Boone's daughter might be seen in high-heeled shoes, attended by white servants whose wages were a dollar a week, skirting muddy roads under a ten-dollar bonnet and a six-dollar parasol. Or, he might emerge from a lonely forest in Ohio or Indiana and come suddenly upon a party of neighbors at a dreary tavern, enjoying a corn shucking or a harvest home. Immediately dubbed "Doctor," "Squire," or "Colonel" by the hospitable merrymakers, the passer-by would be informed that he "should drink and lack no good thing." After he had retired, as likely as not his quarters would be invaded at one or two o'clock in the morning by the uproarious company, and the best refreshment of the house would be forced

upon him with a hilarity "created by omnipotent whiskey." Sometimes, however, the traveler would encounter pitiful instances of loneliness in the wide-spreading forests. One man in passing a certain isolated cabin was implored by the woman who inhabited it to rest awhile and talk, since she was, she confessed, completely overwhelmed by "the lone!"

Every traveler has remarked upon the yellow pallor of the first inhabitants of the western forests and doubtless correctly attributed this sickly appearance to the effects of malaria and miasma. The psychic influences of the forest wilderness also weighed heavily upon the spirits of the settlers, although, as Baily notes, it was the newcomers who felt the depression to an exaggerated degree. As he says:

> It is a feeling of confinement, which begins to damp the spirits, from this complete exclusion of distant objects. To travel day after day, among trees of a hundred feet high, is oppressive to a degree which those cannot conceive who have not experienced it; and it must depress the spirits of the solitary settler to pass years in this state. His visible horizon extends no farther than the tops of the trees which bound his plantation — perhaps five hundred yards. Upwards he sees the sun, and sky, and stars, but around him an

eternal forest, from which he can never hope to emerge: — not so in a thickly settled district; he cannot there enjoy any freedom of prospect, yet there is variety, and some scope for the imprisoned vision. In a hilly country a little more range of view may occasionally be obtained; and a river is a stream of light as well as of water, which feasts the eye with a delight inconceivable to the inhabitants of open countries.

In direct contradiction to this longing for society was the passion which the first generation of pioneers had for the wilderness. When the population of one settlement became too thick, they were seized by an irresistible impulse to "follow the migration," as the expression went. The easy independence of the first hunter-agriculturalist was upset by the advance of immigration. His range was curtailed, his freedom limited. His very breath seems to have become difficult. So he sold out at a phenomenal profit, put out his fire, shouldered his gun, called his dog, and set off again in search of the solitude he craved.

Severe winter weather overtook Baily as he descended the Ohio River, until below Grave Creek floating ice wrecked his boat and drove him ashore. Here in the primeval forest, far from "Merrie England," Baily spent the Christmas of 1796 in building a new flatboat. This task completed, he

resumed his journey. Passing Marietta, where the bad condition of the winter roads prevented a visit to a famous Indian mound, he reached Limestone. In due time he sighted Columbia, the metropolis of the Miami country. According to Baily, the sale of European goods in this part of the Ohio Valley netted the importers a hundred per cent. Prices varied with the ease of navigation. When ice blocked the Ohio the price of flour went up until it was eight dollars a barrel; whiskey was a dollar a gallon; potatoes, a dollar a bushel; and bacon, twelve cents a pound. At these prices, the total produce which went by Fort Massac in the early months of 1800 would have been worth on the Ohio River upwards of two hundred thousand dollars! In the preceding summer Baily quoted flour at Norfolk as selling at sixty-three shillings a barrel of 196 pounds, or double the price it was bringing on the ice-gorged Ohio. It is by such comparisons that we get some inkling of the value of western produce and of the rates in western trade.

After a short stay at Cincinnati, Baily set out for the South on an "Orleans boat" loaded with four hundred barrels of flour. At the mouth of Pigeon Creek he noted the famous path to "Post

St. Vincent's" (Vincennes), over which he saw emigrants driving cattle to that ancient town on the Wabash. At Fort Massac he met Captain Zebulon M. Pike, whose tact in dealing with intoxicated Indians he commended. At New Madrid Baily made a stay of some days. This settlement, consisting of some two hundred and fifty houses, was in the possession of Spain. It was within the province of Louisiana, soon to be ceded to Napoleon. New Orleans supplied this district with merchandise, but smuggling from the United States was connived at by the Spanish officials.

From New Madrid Baily proceeded to Natchez, which then contained about eighty-five houses. The town did not boast a tavern, but, as was true of other places in the interior, this lack was made up for by the hospitality of its inhabitants. Rice and tobacco were being grown, Baily notes, and Georgian cotton was being raised in the neighborhood. Several jennies were already at work, and their owners received a royalty of one-eighth of the product. The cotton was sent to New Orleans, where it usually sold for twenty dollars a hundred weight. From Natchez to New Orleans the charge for transportation by flatboat was a dollar and a half a bag. The bags contained from one hundred

and fifty to two hundred and fifty pounds, and each flatboat carried about two hundred and fifty bags. Baily adds two items to the story of the development of the mechanical operation of watercraft. He tells us that in the fall of 1796 a party of "Dutchmen," in the Pittsburgh region, fashioned a boat with side paddle wheels which were turned by a treadmill worked by eight horses under the deck. This strange boat, which passed Baily when he was wrecked on the Ohio near Grave Creek, appeared "to go with prodigious swiftness." Baily does not state how much business the boat did on its downward trip to New Orleans but contents himself with remarking that the owners expected the return trip to prove very profitable. When he met the boat on its upward voyage at Natchez, it had covered three hundred miles in six days. It was, however, not loaded, "so little occasion was there for a vessel of this kind." As this run between New Orleans and Natchez came to be one of the most profitable in the United States in the early days of steamboating, less than fifteen years later, the experience of these "Flying Dutchmen" affords a very pretty proof that something more than a means of transportation is needed to create commerce. The owners

abandoned their craft at Natchez in disgust and returned home across country, wiser and poorer.

Baily also noted that a Dr. Waters of New Madrid built a schooner "some few years since" at the head of the Ohio and navigated it down the Ohio and Mississippi and around to Philadelphia, "where it is now employed in the commerce of the United States." It is thus apparent, solely from this traveler's record, that an ocean-going vessel and a side-paddle-wheel boat had been seen on the Western Waters of the United States at least four years before the nineteenth century arrived.

Baily finally reached New Orleans. The city then contained about a thousand houses and was not only the market for the produce of the river plantations but also the center of an extensive Indian trade. The goods for this trade were packed in little barrels which were carried into the interior on pack-horses, three barrels to a horse. The traders traveled for hundreds of miles through the woods, bartering with the Indians on the way and receiving, in exchange for their goods, bear and deer skins, beaver furs, and wild ponies which had been caught by lariat in the neighboring Apalousa country.

Baily had intended to return to New York by

sea, but on his arrival at New Orleans he was unable to find a ship sailing to New York. He therefore decided to proceed northward by way of the long and dangerous Natchez Trace and the Tennessee Path. Though few Europeans had made this laborious journey before 1800, the Natchez Trace had been for many years the land route of thousands of returning rivermen who had descended the Mississippi in flatboat and barge. In practically all cases these men carried with them the proceeds of their investment, and, as on every thoroughfare in the world traveled by those returning from market, so here, too, highwaymen and desperadoes, red and white, built their lairs and lay in wait. Some of the most revolting crimes of the American frontier were committed on these northward pathways and their branches.

Joining a party bound for Natchez, a hundred and fifty miles distant overland, Baily proceeded to Lake Pontchartrain and thence "north by west through the woods," by way of the ford of the Tangipahoa, Cooper's Plantation, Tickfaw River, Amite River, and the "Hurricane" (the path of a tornado) to the beginning of the Apalousa country. This tangled region of stunted growth was reputed to be seven miles in width from "shore to shore"

and three hundred miles in length. It took the party half a day to reach the opposite "shore," and they had to quench their thirst on the way with dew.

At Natchez, Baily organized a party which included the five "Dutchmen" whose horse boat had proved a failure. For their twenty-one days' journey to Nashville the party laid in the following provisions: 15 pounds of biscuit, 6 pounds of flour, 12 pounds of bacon, 10 pounds of dried beef, 3 pounds of rice, 1½ pounds of coffee, 4 pounds of sugar, and a quantity of pounded corn, such as the Indians used on all their journeys. After celebrating the Fourth of July, 1797, with "all the inhabitants who were hostile to the Spanish Government," and bribing the baker at the Spanish fort to bake them a quarter of a hundredweight of bread, the party started on their northward journey.

They reached without incident the famous Grindstone Ford of Bayou Pierre, where crayfishes had destroyed a pioneer dam. Beyond, at the forks of the path where the Choctaw Trail bore off to the east the party pursued the alternate Chickasaw Trail by Indian guidance, and soon noted the change in the character of the soil from black loam to sandy gravel, which indicated that

they had reached the Piedmont region. Indian marauders stole one horse from the camp, and three of the party fell ill. The others, pressed for food, were compelled to leave the sick men in an improvised camp and to hasten on, promising to send to their aid the first Indian they should meet "who understood herbs." After appalling hardships, they crossed the Tennessee and entered the Nashville country, where the roads were good enough for coaches, for they met two on the way. Thence Baily proceeded to Knoxville, seeing, as he went, droves of cattle bound for the settlements of west Tennessee. With his arrival at Knoxville, his journal ends abruptly; but from other sources we learn that he sailed from New York on his return to England in January, 1798. His interesting record, however, remained unpublished until after his death in 1844.

Not only to Francis Baily but to scores of other travelers, even those of unfriendly eyes, do modern readers owe a debt of gratitude. These men have preserved a multitude of pictures and a wealth of data which would otherwise have been lost. The men of America in those days were writing the story of their deeds not on parchment or paper but on the virgin soil of the wilderness. But

though the stage driver, the tavern keeper, and the burly riverman left no description of the life of their highways and their commerce, these visitors from other lands have bequeathed to us their thousands of pages full of the enterprising life of these pioneer days in the history of American commerce.

CHAPTER VII

THE BIRTH OF THE STEAMBOAT

THE crowds who welcomed the successive stages in the development of American transportation were much alike in essentials — they were all optimistic, self-congratulatory, irrepressible in their enthusiasm, and undaunted in their outlook. Dickens, perhaps, did not miss the truth widely when, in speaking of stage driving, he said that the cry of "Go Ahead!" in America and of "All Right!" in England were typical of the civilizations of the two countries. Right or wrong, "Go Ahead!" has always been the underlying passion of all men interested in the development of commerce and transportation in these United States.

During the era of river improvement already described, men of imagination were fascinated with the idea of propelling boats by mechanical means. Even when Washington fared westward in 1784, he met at Bath, Virginia, one of these

early experimenters, James Rumsey, who haled him forthwith to a neighboring meadow to watch a secret trial of a boat moved by means of machinery which worked setting-poles similar to the iron-shod poles used by the rivermen to propel their boats upstream. "The model," wrote Washington, "and its operation upon the water, which had been made to run pretty swift, not only convinced me of what I before thought next to, if not quite impracticable, but that it might be to the greatest possible utility in inland navigation." Later he mentions the "discovery" as one of those "circumstances which have combined to render the present epoch favorable above all others for securing a large portion of the produce of the western settlements, and of the fur and peltry of the Lakes, also."

From that day forward, scarcely a week passed without some new development in the long and difficult struggle to improve the means of navigation. Among the scores of men who engaged in this engrossing but discouraging work, there is one whom the world is coming to honor more highly than in previous years — John Fitch, of Connecticut, Pennsylvania, and Kentucky. As early as August, 1785, Fitch launched on a rivulet in Bucks

County, Pennsylvania, a boat propelled by an engine which moved an endless chain to which little paddles were attached. The next year, Fitch's second boat, operated by twelve paddles, six on a side — an arrangement suggesting the "side-wheeler" of the future — successfully plied the Delaware off "Conjuror's Point," as the scene of Fitch's labors was dubbed in whimsical amusement and derision. In 1787 Rumsey, encouraged by Franklin, fashioned a boat propelled by a stream of water taken in at the prow and ejected at the stern. In 1788 Fitch's third boat traversed the distance from Philadelphia to Burlington on numerous occasions and ran as a regular packet in 1790, covering over a thousand miles. In this model Fitch shifted the paddles from the sides to the rear, thus anticipating in principle the modern stern-wheeler.

It was doubtless Fitch's experiments in 1785 that led to the first plan in America to operate a land vehicle by steam. Oliver Evans, a neighbor and acquaintance of Fitch's, petitioned the Pennsylvania Legislature in 1786 for the right of operating wagons propelled by steam on the highways of that State. This petition was derisively rejected; but a similar one made to the Legislature of Maryland

was granted on the ground that such action could hurt nobody. Evans in 1802 took fiery revenge on the scoffers by actually running his little five-horse-power carriage through Philadelphia. The rate of speed, however, was so slow that the idea of moving vehicles by steam was still considered useless for practical purposes. Eight years later, Evans offered to wager $3000 that, on a level road, he could make a carriage driven by steam equal the speed of the swiftest horse, but he found no response. In 1812 he asserted that he was willing to wager that he could drive a steam carriage on level rails at a rate of fifteen miles an hour. Evans thus anticipated the belief of Stephenson that steam-driven vehicles would travel best on railed tracks.

In the development of the steamboat almost all earlier means of propulsion, natural and artificial, were used as models by the inventors. The fins of fishes, the webbed feet of amphibious birds, the paddles of the Indian, and the poles and oars of the riverman, were all imitated by the patient inventors struggling with the problem. Rumsey's first effort was a copy of the old setting-pole idea. Fitch's model of 1785 had side paddle wheels operated by an endless chain. Fitch's second and third models were practically paddle-wheel models, one

having the paddles at the side and the other at the stern. Ormsbee of Connecticut made a model, in 1792, on the plan of a duck's foot. Morey made what may be called the first real stern-wheeler in 1794. Two years later Fitch ran a veritable screw propeller on Collect Pond near New York City. Although General Benjamin Tupper of Massachusetts had been fashioning devices of this character eight years previously, Fitch was the first to apply the idea effectively. In 1798 he evolved the strange, amphibious creation known as his "model of 1798," which has never been adequately explained. It was a steamboat on iron wheels provided with flanges, as though it was intended to be run on submerged tracks. What may have been the idea of its inventor, living out his last gloomy days in Kentucky, may never be known; but it is possible to see in this anomalous machine an anticipation of the locomotive not approached by any other American of the time. Thus, prior to 1800 almost every type of mechanism for the propulsion of steamboats had been suggested and tried; and in 1804, Stevens's twin-screw propeller completed the list.

It is not alone Fitch's development of the devices of the endless chain, paddle wheel, and screw

propeller and of his puzzling earth-and-water creature that gives luster to his name. His prophetic insight into the future national importance of the steamboat and his conception, as an inventor, of his moral obligations to the people at large were as original and striking in the science of that age as were his models.

The early years of the national life of the United States were the golden age of monopoly. Every colony, as a matter of course, had granted to certain men special privileges, and, as has already been pointed out, the questions of monopolies and combinations in restraint of trade had arisen even so early as the beginning of the eighteenth century. Interwoven inextricably with these problems was the whole problem of colonial rivalry, which in its later form developed into an insistence on state rights. Every improvement in the means of transportation, every development of natural resources, every new invention was inevitably considered from the standpoint of sectional interests and with a view to its monopolistic possibilities. This was particularly true in the case of the steamboat, because of its limitation to rivers and bays which could be specifically enumerated and defined. For instance, Washington in 1784 attests the fact

that Rumsey operated his mechanical boat at Bath in secret "until he saw the effect of an application he was about to make to the Assembly of this State, for a reward." The application was successful, and Rumsey was awarded a monopoly in Virginia waters for ten years.

Fitch, on the other hand, when he applied to Congress in 1785, desired merely to obtain official encouragement and intended to allow his invention to be used by all comers. Meeting only with rebuff, he realized that his only hope of organizing a company that could provide working capital lay in securing monopolistic privileges. In 1786 he accordingly applied to the individual States and secured the sole right to operate steamboats on the waterways of New Jersey, Delaware, New York, Pennsylvania, and Virginia. How different would have been the story of the steamboat if Congress had accepted Fitch at his word and created a precedent against monopolistic rights on American rivers!

Fitch, in addition to the high purpose of devoting his new invention to the good of the nation without personal considerations, must be credited with perceiving at the very beginning the peculiar importance of the steamboat to the American West.

His original application to Congress in 1785 opened: "The subscriber begs leave to lay at the feet of Congress, an attempt he has made to facilitate the internal Navigation of the United States, adapted especially to the Waters of the Mississippi." At another time with prophetic vision he wrote: "The Grand and Principle object must be on the Atlantick, which would soon overspread the wild forests of America with people, and make us the most oppulent Empire on Earth. Pardon me, generous public, for suggesting ideas that cannot be dijested at this day."

Foremost in exhibiting high civic and patriotic motives, Fitch was also foremost in appreciating the importance of the steamboat in the expansion of American trade. This significance was also clearly perceived by his brilliant successor, Robert Fulton. That the West and its commerce were always predominant in Fulton's great schemes is proved by words which he addressed in 1803 to James Monroe, American Ambassador to Great Britain: "You have perhaps heard of the success of my experiments for navigating boats by steam engines and you will feel the importance of establishing such boats on the Mississippi and other rivers of the United States as soon as possible."

Robert Fulton had been interested in steamboats for a period not definitely known, possibly since his sojourn in Philadelphia in the days of Fitch's early efforts. That he profited by the other inventor's efforts at the time, however, is not suggested by any of his biographers. He subsequently went to London and gave himself up to the study and practice of engineering. There he later met James Rumsey, who came to England in 1788, and by him no doubt was informed, if he was not already aware, of the experiments and models of Rumsey and Fitch. He obtained the loan of Fitch's plans and drawings and made his own trial of various existing devices, such as oars, paddles, duck's feet, and Fitch's endless chain with "resisting-boards" attached. Meanwhile Fulton was also devoting his attention to problems of canal construction and to the development of submarine boats and submarine explosives. He was engaged in these researches in France in 1801 when the new American minister, Robert R. Livingston, arrived, and the two men soon formed a friendship destined to have a vital and enduring influence upon the development of steam navigation on the inland waterways of America.

Livingston already had no little experience in

the same field of invention as Fulton. In 1798 he had obtained, for a period of twenty years, the right to operate steamboats on all the waters of the State of New York, a monopoly which had just lapsed owing to the death of Fitch. In the same year Livingston had built a steamboat which had made three miles an hour on the Hudson. He had experimented with most of the models then in existence — upright paddles at the side, endless-chain paddles, and stern paddle wheels. Fulton was soon inspired to resume his efforts by Livingston's account of his own experiments and of recent advances in England, where a steamboat had navigated the Thames in 1801 and a year later the famous stern-wheeler *Charlotte Dundas* had towed boats of 140 tons' burden on the Forth and Clyde Canal at the rate of five miles an hour. In this same year Fulton and Livingston made successful experiments on the Seine.

It is fortunate that, in one particular, Livingston's influence did not prevail with Fulton, for the American Minister was distinctly prejudiced against paddle wheels. Although Livingston had previously ridden as a passenger on Morey's stern-wheeler at the rate of five miles an hour, yet he had turned a deaf ear when his partner in

experimentation, Nicholas J. Roosevelt, had insisted strongly on "throwing wheels over the sides." At the beginning, Fulton himself was inclined to agree with Livingston in this respect; but, probably late in 1803, he began to investigate more carefully the possibilities of the paddle wheel as used twice in America by Morey and by four or five experimenters in Europe. In 1804 an eight-mile trip which Fulton made on the *Charlotte Dundas* in an hour and twenty minutes established his faith in the undeniable superiority of two fundamental factors of early navigation — paddle wheels and British engines. Fulton's splendid fame rests, and rightly so, on his perception of the fact that no mere ingenuity of design could counterbalance weakness, uncertainty, and inefficiency in the mechanism which was intended to make a steamboat run and keep running. As early as November, 1803, Fulton had written to Boulton and Watt of Birmingham that he had "not confidence in any other engines" than theirs and that he was seeking a means of getting one of those engines to America. "I cannot establish the boat without the engine," he now emphatically wrote to James Monroe, then Ambassador to the Court of St. James. "The question then is shall we or shall we not have such boats."

But there were difficulties in the way. Though England forbade the exportation of engines, Fulton knew that, in numerous instances, this rule had not been enforced, and he had hopes of success. "The British Government," Fulton wrote Monroe, "must have little friendship or even civility toward America, if they refuse such a request." Before the steamboat which Fulton and Livingston proposed to build in America could be operated there was another obstacle to be surmounted. The rights of steam navigation of New York waters which Livingston had obtained on the death of Fitch in 1798 had lapsed because of his failure to run a steamboat at the rate of four miles an hour, which was one provision of the grant. In April, 1803, the grant was renewed to Livingston, Roosevelt, and Fulton jointly for another period of twenty years, and the date when the boat was to make the required four miles an hour was extended finally to 1807.

Any one who is inclined to criticize the Livingston-Roosevelt-Fulton monopoly which now came into existence should remember that the previous state grants formed a precedent of no slight moment. The whole proceeding was in perfect accord with the spirit of the times, for it was an

era of speculation and monopoly ushered in by the toll-road and turnpike organizations, when probably no less than two hundred companies were formed. It was young America showing itself in an unmistakable manner — "conceived in liberty" and starting on the long road to learn that obedience to law and respect for public rights constitute true liberty. Finally, it must be pointed out that Fulton, like his famous predecessor, Fitch, was impelled by motives far higher than the love of personal gain. "I consider them [steamboats] of such infinite use in America," he wrote Monroe, "that I should feel a culpable neglect toward my country if I relaxed for a moment in pursuing every necessary measure for carrying it into effect." And later, when repeating his argument, he says: "I plead this not for myself alone but for our country."

It is now evident why the alliance of Fulton with Livingston was of such epoch-making importance, for, although it may have in some brief measure delayed Fulton's adoption of paddle wheels, it gave him an entry to the waters of New York. Livingston and Fulton thus supplemented each other; Livingston possessed a monopoly and Fulton a correct estimate of the value of paddle wheels

and, secondly, of Boulton and Watt engines. It was a rare combination destined to crown with success a long period of effort and discouragement in the history of navigation.

After considerable delay and difficulty, the two Americans obtained permission to export the necessary engine from Great Britain and shipped it to New York, whither Fulton himself proceeded to construct his steamboat. The hull was built by Charles Brown, a New York shipbuilder, and the Boulton and Watt machinery, set in masonry, was finally installed.

The voyage to Albany, against a stiff wind, occupied thirty-two hours; the return trip was made in thirty. H. Freeland, one of the spectators who stood on the banks of the Hudson when the boat made its maiden voyage in 1807, gives the following description:

Some imagined it to be a sea-monster whilst others did not hesitate to express their belief that it was a sign of the approaching judgment. What seemed strange in the vessel was the substitution of lofty and straight smoke-pipes, rising from the deck, instead of the gracefully tapered masts . . . and, in place of the spars and rigging, the curious play of the walking-beam and pistons, and the slow turning and splashing of the huge and naked paddle-wheels, met the

astonished gaze. The dense clouds of smoke, as they rose, wave upon wave, added still more to the wonderment of the rustics. . . . On her return trip the curiosity she excited was scarcely less intense . . . fishermen became terrified, and rode homewards, and they saw nothing but destruction devastating their fishing grounds, whilst the wreaths of black vapor and rushing noise of the paddle-wheels, foaming with the stirred-up water, produced great excitement. . . .

With the launching of the *Clermont* on the Hudson a new era in American history began. How quick with life it was many of the preceding pages bear testimony. The infatuation of the public for building toll and turnpike roads was now at its height. Only a few years before, a comprehensive scheme of internal improvements had been outlined by Jefferson's Secretary of the Treasury, Albert Gallatin. When a boy, it is said, he had lain on the floor of a surveyor's cabin on the western slopes of the Alleghanies and had heard Washington describe to a rough crowd of Westerners his plan to unite the Great Lakes with the Potomac in one mighty chain of inland commerce. Jefferson's Administration was now about to devote the surplus in the Treasury to the construction of national highways and canals. The Cumberland Road, to be built across the Alleghanies

by the War Department, was authorized by the President in the same year in which the *Clermont* made her first trip; and Jesse Hawley, at his table in a little room in a Pittsburgh boarding house, was even now penning in a series of articles, published in the Pittsburgh *Commonwealth*, beginning in January, 1807, the first clear challenge to the Empire State to connect the Hudson and Lake Erie by a canal. Thus the two next steps in the history of inland commerce in America were ready to be taken.

CHAPTER VIII

THE CONQUEST OF THE ALLEGHANIES

The two great thoroughfares of American commerce in the first half of the nineteenth century were the Cumberland Road and the Erie Canal. The first generation of the new century witnessed the great burst of population into the West which at once gave Ohio, Indiana, Illinois, Michigan, and Wisconsin a place of national importance which they have never relinquished. So far as pathways of commerce contributed to the creation of this veritable new republic in the Middle West, the Cumberland Road and the Erie Canal, coöperating respectively with Ohio River and Lake Erie steamboats, were of the utmost importance. The national spirit, said to have arisen from the second war with England, had its clearest manifestation in the throwing of a great macadamized roadway across the Alleghanies to the Ohio River and the digging of the Erie

Canal through the swamps and wildernesses of New York.

Both of these pathways were essentially the fruition of the doctrine to which Washington gave wide circulation in his letter to Harrison in 1784, wherein he pictured the vision of a vast Republic united by commercial chains. Both were essentially Western enterprises. The highway was built to fulfil the promise which the Government had made in 1802 to use a portion of the money accruing from the sale of public lands in Ohio in order to connect that young State with Atlantic waters. It was proposed to build the canal, according to one early plan, with funds to be obtained by the sale of land in Michigan. So firmly did the promoters believe in the national importance of this project that subscriptions, according to another plan, were to be solicited as far afield as Vermont in the North and Kentucky in the Southwest. All that Washington had hoped for, and all that Aaron Burr is supposed to have been hopeless of, were epitomized in these great works of internal improvement. They bespoke coöperation of the highest existing types of loyalty, optimism, financial skill, and engineering ability.

Yet, on the other hand, the contrasts between

these undertakings were great. The two enterprises, one the work of the nation and the other that of a single State, were practically contemporaneous and were therefore constantly inviting comparison. The Cumberland Road was, for its day, a gigantic government undertaking involving problems of finance, civil engineering, eminent domain, state rights, local favoritism, and political machination. Its purpose was noble and its successful construction a credit to the nation; but the paternalism to which it gave rise and the conflicts which it precipitated in Congress over questions of constitutionality were remembered soberly for a century. The Erie Canal, after its projectors had failed to obtain national aid, became the undertaking of one commonwealth conducted, amid countless doubts and jeers, to a conclusion unbelievably successful. As a result many States, foregoing Federal aid, attempted to duplicate the successful feat of New York. In this respect the northern canal resembled the Lancaster Turnpike and tempted scores of States and corporations to expenditures which were unwise in circumstances less favorable than those of the fruitful and strategic Empire State.

In the conception of both the roadway and the canal, it should be noted, the old idea of making

use of navigable rivers still persisted. The act foreshadowing the Cumberland Road, passed in 1802, called for "making public roads leading from the navigable waters emptying into the Atlantic, to the Ohio, to said State Ohio and through the same"; and Hawley's original plan was to build the Erie Canal from Utica to Buffalo using the Mohawk from Utica to the Hudson.

Historic Cumberland, in Maryland, was chosen by Congress as the eastern terminus of the great highway which should bind Ohio to the Old Thirteen. Commissioners were appointed in 1806 to choose the best route by which the great highway could reach the Ohio River between Steubenville, Ohio and the mouth of Grave Creek; but difficulties of navigation in the neighborhood of the Three Sister Islands near Charlestown, or Wellsburg, West Virginia, led to the choice of Wheeling, farther down, as a temporary western terminus.

The route selected was an excellent compromise between the long standing rival claims of Pennsylvania, Maryland, and Virginia to the trade of the West. If Baltimore and Alexandria were to be better served than Philadelphia, the advantage was slight; and Pennsylvania gained compensation, ere the State gave the National Government

permission to build the road within its limits, by dictating that it should pass through Uniontown and Washington. In this way Pennsylvania obtained, without cost, unrivaled advantages for a portion of the State which might otherwise have been long neglected.

The building of the road, however satisfactory in the main, was not undertaken without arousing many sectional and personal hopes and prejudices and jealousies, of which the echoes still linger in local legends today. Land-owners, mine-owners, factory-owners, innkeepers and countless townsmen and villagers anxiously watched the course of the road and were bitterly disappointed if the new sixty-four-foot thoroughfare did not pass immediately through their property. On the other hand, promoters of toll and turnpike companies, who had promising schemes and long lists of shareholders, were far from eager to have their property taken for a national road. No one believed that, if it proved successful, it would be the only work of its kind, and everywhere men looked for the construction of government highways out of the overflowing wealth of the treasury within the next few years.

In April, 1811, the first contracts were let for

building the first ten miles of the road from its eastern terminus and were completed in 1812. More contracts were let in 1812, 1813, and 1815. Even in those days of war when the drain on the national treasury was excessive, over a quarter of a million dollars was appropriated for the construction of the road. Onward it crawled, through the beautiful Cumberland gateway of the Potomac, to Big Savage and Little Savage Mountains, to Little Pine Run (the first "Western" water), to Red Hill (later called "Shades of Death" because of the gloomy forest growth), to high-flung Negro Mountain at an elevation of 2325 feet, and thence on to the Youghiogheny, historic Great Meadows, Braddock's Grave, Laurel Hill, Uniontown, and Brownsville, where it crossed the Monongahela. Thence, on almost a straight line, it sped by way of Washington to Wheeling. Its average cost was upwards of thirteen thousand dollars a mile from the Potomac to the Ohio. The road was used in 1817, and in another year the mail coaches of the United States were running from Washington to Wheeling, West Virginia. Within five years one of the five commission houses doing business at Wheeling is said to have handled over a thousand wagons carrying freight of nearly two tons each.

The Cumberland Road at once leaped into a position of leadership, both in volume of commerce and in popularity, and held its own for two famous decades. The pulse of the nation beat to the steady throb of trade along its highway. Maryland at once stretched out her eager arms, along stone roads, through Frederick and Hagerstown to Cumberland, and thus formed a single route from the Ohio to Baltimore. Great stagecoach and freight lines were soon established, each patronizing its own stage house or wagon stand in the thriving towns along the road. The primitive box stage gave way to the oval or football type with curved top and bottom, and this was displaced in turn by the more practical Concord coach of national fame. The names of the important stagecoach companies were quite as well known, a century ago, as those of our great railways today. Chief among them were the *National*, *Good Intent*, *June Bug*, and *Pioneer* lines. The coaches, drawn by four and sometimes six horses, were usually painted in brilliant colors and were named after eminent statesmen. The drivers of these gay chariots were characters quite as famous locally as the personages whose names were borne by the coaches. Westover and his record of forty-five

minutes for the twenty miles between Uniontown and Brownsville, and "Red" Bunting, with his drive of a hundred and thirty-one miles in twelve hours with the declaration of war against Mexico, will be long famous on the curving stretches of the Cumberland Road.

Although the freight and express traffic of those days lacked the picturesqueness of the passenger coaches, nothing illustrates so conclusively what the great road meant to an awakening West as the long lines of heavy Conestogas and rattling express wagons which raced at "unprecedented" speed across hill and vale. Searight, the local historian of the road, describes these large, broad-wheeled wagons covered with white canvas as

> visible all the day long, at every point, making the highway look more like a leading avenue of a great city than a road through rural districts. . . . I have staid over night with William Cheets on Nigger [Negro] Mountain when there were about thirty six-horse teams in the wagon yard, a hundred Kentucky mules in an adjoining lot, a thousand hogs in their enclosures, and as many fat cattle in adjoining fields. The music made by this large number of hogs eating corn on a frosty night I shall never forget. After supper and attention to the teams, the wagoners would gather in the bar-room and listen to the music on the violin furnished by one of their fellows, have a Virginia

hoe-down, sing songs, tell anecdotes, and hear the experiences of drivers and drovers from all points of the road, and, when it was all over, unroll their beds, lay them down on the floor before the bar-room fire side by side, and sleep with their feet near the blaze as soundly as under the parental roof.

Meanwhile New York, the other great rival for Western trade, was intent on its own darling project, the Erie Canal. In 1808, three years before the building of the Cumberland Road, Joshua Forman offered a bill in favor of the canal in the Legislature of New York. In plain but dignified language this document stated that New York possessed "the best route of communication between the Atlantic and western waters," and that it held "the first commercial rank in the United States." The bill also noted that, while "several of our sister States" were seeking to secure "the trade of that wide extended country," their natural advantages were "vastly inferior." Six hundred dollars was the amount appropriated for a brief survey, and Congress was asked to vote aid for the construction of the "Buffalo-Utica Canal." The matter was widely talked about but action was delayed. Doubt as to the best route to be pursued caused some discussion. If the western terminus were to

be located on Lake Ontario at the mouth of the Oswego, as some advocated, would produce not make its way to Montreal instead of to New York? In 1810 a new committee was appointed and, though their report favored the paralleling of the course of the Mohawk and Oswego rivers, their engineer, James Geddes, gave strength to the party which believed a direct canal would best serve the interests of the State. It is worth noting that Livingston and Fulton were added to the committee in 1811.

The hopes of outside aid from Congress and adjacent States met with disappointment. In vain did the advocates of the canal in 1812 plead that its construction would promote "a free and general intercourse between different parts of the United States, tend to the aggrandizement and prosperity of the country, and consolidate and strengthen the Union." The plan to have the Government subsidize the canal by vesting in the State of New York four million acres of Michigan land brought out a protest from the West which is notable not so much because it records the opposition of this section as because it illustrates the shortsightedness of most of the arguments raised against the New York enterprise. The purpose of the canal, the

detractors asserted, was to build up New York City to the detriment of Montreal, and the navigation of Lake Ontario, whose beauty they touchingly described, was to be abandoned for a "narrow, winding obstructed canal . . . for an expense which arithmetic dares not approach." It was, in their minds, unquestionably a selfish object, and they believed that "both correct science, and the dictates of patriotism and philanthropy [should] lead to the adoption of more liberal principles." It was a shortsighted object, "predicated on the eternal adhesion of the Canadas to England." It would never give satisfaction since trade would always ignore artificial and seek natural routes. The attempting of such comparatively useless projects would discourage worthy schemes, relax the bonds of Union, and depress the national character. But though these Westerners thus misjudged the possibilities of the Erie Canal, we must doff our hats to them for their foresight in suggesting that, instead of aiding the Erie Canal, the nation ought to build canals at Niagara Falls and Panama!

The War of 1812 suspended all talk of the canal, but the subject was again brought up by Judge Platt in the autumn of 1816. With alacrity strong men came to the aid of the measure. De Witt

Clinton's *Memorial* of 1816 addressed to the State Legislature may well rank with Washington's letter to Harrison in the documentary history of American commercial development. It sums up the geographical position of New York with reference to the Great Lakes and the Atlantic, her relationship to the West and to Canada, the feasibility of the proposed route from an engineering standpoint, the timeliness of the moment for such a work of improvement, the value that the canal would give to the state lands of the interior, and the trade that it would bring to the towns along its pathway.

The Erie Canal was born in the Act of April 14, 1817, but the decision of the Council of Revision, which held the power of veto, was in doubt. An anecdote related by Judge Platt tends to prove that fear of another war with England was the straw that broke the camel's back of opposition. Acting-Governor Taylor, Chief Justice Thompson, Chancellor Kent, Judge Yates, and Judge Platt composed the Council. The two first named were open opponents of the measure; Kent, Yates, and Platt were warm advocates of the project, but one of them doubted if the time was ripe to undertake it.

Taylor opposed the canal on the ground that the late treaty with England was a mere truce and that the resources of the State should be husbanded against renewed war.

"Do you think so, Sir?" Chancellor Kent is said to have asked the Governor.

"Yes, Sir," was the reported reply. "England will never forgive us for our victories, and, my word for it, we shall have another war with her within two years."

The Chancellor rose to his feet with determination and sealed the fate of the great enterprise in a word.

"If we must have war," he exclaimed, "I am in favor of the canal and I cast my vote for this bill."

On July 4, 1817, work was formally inaugurated at Rome with simple ceremonies. Thus the year 1817 was marked by three great undertakings: the navigation of the Mississippi River upstream and down by steamboats, the opening of the national road across the Alleghany Mountains, and the beginning of the Erie Canal. No single year in the early history of the United States witnessed three such important events in the material progress of the country.

What days the ancient "Long House of the Iroquois" now saw! The engineers of the Cumberland Road, now nearing the Ohio River, had enjoyed the advantage of many precedents and examples; but the Commissioners of the Erie Canal had been able to study only such crude examples of canal-building as America then afforded. Never on any continent had such an inaccessible region been pierced by such a highway. The total length of the whole network of canals in Great Britain did not equal that of the waterway which the New Yorkers now undertook to build. The lack of roads, materials, vehicles, methods of drilling and efficient business systems was overcome by sheer patience and perseverance in experiment. The frozen winter roads saved the day by making it possible to accumulate a proper supply of provisions and materials. As tools of construction, the plough and scraper with their greater capacity for work soon supplanted the shovel and the wheelbarrow, which had been the chief implements for such construction in Europe. Strange new machinery born of Mother Necessity was now heard groaning in the dark swamps of New York. These giants, worked by means of a cable, wheel, and endless screw, were made to hoist

green stumps bodily from the ground and, without the use of axe, to lay trees prostrate, root and branch. A new plough was fashioned with which a yoke of oxen could cut roots two inches in thickness well beneath the surface of the ground.

Handicaps of various sorts wore the patience of commissioners, engineers, and contractors. Lack of snow during one winter all but stopped the work by cutting off the source of supplies. Pioneer ailments, such as fever and ague, reaped great harvests, incapacitated more than a thousand workmen at one time and for a brief while stopped work completely.

For the most part, however, work was carried on simultaneously on all the three great links or sections into which the enterprise was divided. Local contractors were given preference by the commissioners, and three-fourths of the work was done by natives of the State. Forward up the Mohawk by Schenectady and Utica to Rome, thence bending southward to Syracuse, and from there by way of Clyde, Lyons, and Palmyra, the canal made its way to the giant viaduct over the Genesee River at Rochester. Keeping close to the summit level on the dividing ridge between Lake Ontario streams and the Valley of the Tonawanda, the line

ran to Lockport, where a series of locks placed the canal on the Lake Erie level, 365 miles from and 564 feet above Albany. By June, 1823, the canal was completed from Rochester to Schenectady; in October boats passed into the tidewaters of the Hudson at Albany; and in the autumn of 1825 the canal was formally opened by the passage of a triumphant fleet from Lake Erie to New York Bay. Here two kegs of lake water were emptied into the Atlantic, while the Governor of the State of New York spoke these words:

> This solemnity, at this place, on the first arrival of vessels from Lake Erie, is intended to indicate and commemorate the navigable communication, which has been accomplished between our Mediterranean Seas and the Atlantic Ocean, in about eight years, to the extent of more than four hundred and twenty-five miles, by the wisdom, public spirit, and energy of the people of the State of New York; and may the God of the Heavens and the Earth smile most propitiously on this work, and render it subservient to the best interests of the human race.

Throughout these last seven years, the West was subconsciously getting ready to meet the East halfway by improving and extending her steamboat operations. Steamboats were first run on the Great Lakes by enterprising Buffalo citizens who,

in 1818, secured rights from the Fulton-Livingston monopoly to build the *Walk-in-the-Water*, the first of the great fleet of ships that now whiten the inland seas of the United States. Regular lines of steamboats were now formed on the Ohio to connect with the Cumberland Road at Wheeling, although the steamboat monopoly threatened to stifle the natural development of transportation on Western rivers.

The completion of the Erie Canal — coupled with the new appropriation by Congress for extending the Cumberland Road from the Ohio River to Missouri and the beginning of the Pennsylvania and the Chesapeake and Ohio canals, reveal the importance of these concluding days of the first quarter of the nineteenth century in the annals of American transportation. Never since that time have men doubted the ability of Americans to accomplish the physical domination of their continent. With the conquest of the Alleghanies and of the forests and swamps of the "Long House" by pick and plough and scraper, and the mastery of the currents of the Mississippi by the paddle wheel, the vast plains beyond seemed smaller and the Rockies less formidable. Men now looked forward confidently, with an optimist of

these days, to the time "when circulation and association between the Atlantic and Pacific and the Mexican Gulf shall be as free and perfect as they are at this moment in England" between the extremities of that country. The vision of a nation closely linked by well-worn paths of commerce was daily becoming clearer. What further westward progress was soon to be made remains to be seen.

CHAPTER IX

THE DAWN OF THE IRON AGE

DESPITE the superiority of the new iron age that quickly followed the widespreading canal movement, there was a generous spirit and a chivalry in the "good old days" of the stagecoach, the Conestoga, and the lazy canal boat, which did not to an equal degree pervade the iron age of the railroad. When machinery takes the place of human brawn and patience, there is an indefinable eclipse of human interest. Somehow, cogs and levers and differentials do not have the same appeal as fingers and eyes and muscles. The old days of coach and canal boat had a picturesqueness and a comradeship of their own. In the turmoil and confusion and odd mixing of every kind of humanity along the lines of travel in the days of the hurtling coach-and-six, a friendliness, a robust sympathy, a ready interest in the successful and the unfortunate, a knowledge of how the other half lives, and a familiarity

with men as well as with mere places, was common to all who took the road. As Thackeray so vividly describes it:

The land rang yet with the tooting horns and rattling teams of mail-coaches; a gay sight was the road in those days, before steam-engines arose and flung its hostelry and chivalry over. To travel in coaches, to know coachmen and guards, to be familiar with inns along the road, to laugh with the jolly hostess in the bar, to chuck the pretty chamber-maid under the chin, were the delight of men who were young not very long ago. The road was an institution, the ring was an institution. Men rallied around them; and, not without a kind of conservatism expatiated on the benefits with which they endowed the country, and the evils which would occur when they should be no more: — decay of British spirit, decay of manly pluck, ruin of the breed of horses, and so forth and so forth. To give and take a black eye was not unusual nor derogatory in a gentleman: to drive a stage-coach the enjoyment, the emulation, of generous youth. Is there any young fellow of the present time, who aspires to take the place of a stoker? One sees occasionally in the country a dismal old drag with a lonely driver. Where are you, charioteers? Where are you, O rattling *Quicksilver*, O swift *Defiance?* You are passed by racers stronger and swifter than you. Your lamps are out, and the music of your horns has died away.

Behind this change from the older and more picturesque days which is thus lamented there lay

potent economic forces and a strong commercial rivalry between different parts of the country. The Atlantic States were all rivals of each other, reaching out by one bold stroke after another across forest, mountain, and river to the gigantic and fruitful West. Step after step the inevitable conquest went on. Foremost in time marched the sturdy pack-horsemen, blazing the way for the heavier forces quietly biding their time in the rear — the Conestogas, the steamboat, the canal boat, and, last and greatest of them all, the locomotive.

Through a long preliminary period the principal center of interest was the Potomac Valley, towards whose strategic head Virginia and Maryland, by river-improvement and road-building, were directing their commercial routes in amiable rivalry for the conquest of the Western trade. Suddenly out from the southern region of the Middle Atlantic States went the Cumberland National Road to the Ohio. New York instantly, in her zone, took up the challenge and thrust her great Erie Canal across to the Great Lakes. In rapid succession, Pennsylvania and Maryland and Virginia, eager not to be outdone in winning the struggle for Western trade, sent their canals into the Alleghanies toward the Ohio.

It soon developed, however, that Baltimore, both

powerful and ambitious, was seriously handicapped. In order to retain her commanding position as the metropolis of Western trade she was compelled to resort to a new and untried method of transportation which marks an era in American history.

It seems plain that the Southern rivals of New York City — Philadelphia, Baltimore, and Alexandria — had relied for a while on the deterring effect of a host of critics who warned all men that a canal of such proportions as the Erie was not practicable, that no State could bear the financial drain which its construction would involve, that theories which had proved practical on a small scale would fail in so large an undertaking, that the canal would be clogged by floods or frozen up for half of each year, and that commerce would ignore artificial courses and cling to natural channels. But the answer of the Empire State to her rivals was the homely but triumphant cry "Low Bridge!" — the warning to passengers on the decks of canal boats as they approached the numerous bridges which spanned the route. When this cry passed into a byword it afforded positive proof that the Erie Canal traffic was firmly established. The words rang in the counting-houses of Philadelphia and out and along the Lancaster and the

Philadelphia-Pittsburgh turnpikes — "Low Bridge! Low Bridge!" Pennsylvania had granted, it has been pointed out, that her Southern neighbors might have their share of the Ohio Valley trade but maintained that the splendid commerce of the Great Lakes was her own peculiar heritage. Men of Baltimore who had dominated the energetic policy of stone-road building in their State heard this alarming challenge from the North. The echo ran "Low Bridge!" in the poor decaying locks of the Potomac Company where, according to the committee once appointed to examine that enterprise, flood-tides "gave the only navigation that was enjoyed." Were their efforts to keep the Chesapeake metropolis in the lead to be set at naught?

There could be but one answer to the challenge, and that was to rival canal with canal. These more southerly States, confronted by the towering ranges of the Alleghanies to the westward, showed a courage which was superb, although, as time proved in the case of Maryland, they might well have taken more counsel of their fears. Pennsylvania acted swiftly. Though its western waterway — the roaring Juniata, which entered the Susquehanna near Harrisburg — had a drop from head to mouth greater than that of the entire New

York canal, and, though the mountains of the Altoona region loomed straight up nearly three thousand feet, Pennsylvania overcame the lowlands by main strength and the mountain peaks by strategy and was sending canal boats from Philadelphia to Pittsburgh within nine years of the completion of the Erie Canal.

The eastern division of the Pennsylvania Canal, known as the Union Canal, from Reading on the Schuylkill to Middletown on the Susquehanna, was completed in 1827. The Juniata section was then driven on up to Hollidaysburg. Beyond the mountain barrier, the Conemaugh, the Kiskiminitas, and the Allegheny were followed to Pittsburgh. But the greatest feat in the whole enterprise was the conquest of the mountain section, from Hollidaysburg to Johnstown. This was accomplished by the building of five inclined planes on each slope, each plane averaging about 2300 feet in length and 200 feet in height. Up or down these slopes and along the intermediate level sections cars and giant cradles (built to be lowered into locks where they could take an entire canal boat as a load) were to be hauled or lowered by horsepower, and later, by steam. After the plans had been drawn up by Sylvester Welch and Moncure

Robinson, the Pennsylvania Legislature authorized the work in 1831, and traffic over this aerial route was begun in March, 1834. In autumn of that year, the stanch boat *Hit or Miss*, from the Lackawanna country, owned by Jesse Crisman and captained by Major Williams, made the journey across the whole length of the canal. It rested for a night on the Alleghany summit "like Noah's Ark on Ararat," wrote Sherman Day, "descended the next morning into the Valley of the Mississippi, and sailed for St. Louis."

Well did Robert Stephenson, the famous English engineer, say that, in boldness of design and difficulty of execution, this Pennsylvania scheme of mastering the Alleghanies could be compared with no modern triumph short of the feats performed at the Simplon Pass and Mont Cenis. Before long this line of communication became a very popular thoroughfare; even Charles Dickens "heartily enjoyed" it — in retrospect — and left interesting impressions of his journey over it:

> Even the running up, bare-necked, at five o'clock in the morning from the tainted cabin to the dirty deck; scooping up the icy water, plunging one's head into it, and drawing it out, all fresh and glowing with the cold; was a good thing. The fast, brisk walk upon the towing-path, between that time and breakfast, when

every vein and artery seemed to tingle with health; the exquisite beauty of the opening day, when light came gleaming off from everything; the lazy motion of the boat, when one lay idly on the deck, looking through, rather than at, the deep blue sky; the gliding on, at night, so noiselessly, past frowning hills, sullen with dark trees, and sometimes angry in one red burning spot high up, where unseen men lay crouching round a fire; the shining out of the bright stars, undisturbed by noise of wheels or steam, or any other sound than the liquid rippling of the water as the boat went on; all these were pure delights.[1]

Dickens also thus graphically depicts the unique experience of being carried over the mountain peaks on the aerial railway:

There are ten inclined planes; five ascending and five descending; the carriages are dragged up the former, and let slowly down the latter, by means of stationary engines; the comparatively level spaces between being traversed, sometimes by horse, and sometimes by engine power, as the case demands. Occasionally the rails are laid upon the extreme verge of a giddy precipice; and looking from the carriage window, the traveler gazes sheer down, without a stone or scrap of fence between, into the mountain depths below. The journey is very carefully made, however; only two carriages traveling together; and while proper precautions are taken, is not to be dreaded for its dangers.

It was very pretty traveling thus, at a rapid pace

[1] *American Notes* (Gadshill Edition), pp. 180–81.

along the heights of the mountain in a keen wind, to look down into a valley full of light and softness; catching glimpses, through the tree-tops, of scattered cabins; children running to the doors; dogs bursting out to bark, whom we could see without hearing; terrified pigs scampering homewards; families sitting out in their rude gardens; cows gazing upward with a stupid indifference; men in their shirt-sleeves looking on at their unfinished houses, planning out tomorrow's work; and we riding onward, high above them, like a whirl-wind. It was amusing, too, when we had dined, and rattled down a steep pass, having no other motive power than the weight of the carriages themselves, to see the engine released, long after us, come buzzing down alone, like a great insect, its back of green and gold so shining in the sun, that if it had spread a pair of wings and soared away, no one would have had occasion, as I fancied, for the least surprise. But it stopped short of us in a very business-like manner when we reached the canal; and, before we left the wharf, went panting up this hill again, with the passengers who had waited our arrival for the means of traversing the road by which we had come.[1]

This Pennsylvania route was likewise famous because it included the first tunnel in America; but with the advance of years, tunnel, planes, and canal were supplanted by what was to become in time the Pennsylvania Railroad, the pride of the State and one of the great highways of the nation.

[1] *Op. cit.*

In the year before Pennsylvania investigated her western water route, a joint bill was introduced into the legislatures of the Potomac Valley States, proposing a Potomac Canal Company which should construct a Chesapeake and Ohio canal at the expense of Maryland, Virginia, and the District of Columbia. The plan was of vital moment to Alexandria and Georgetown on the Potomac, but unless a lateral canal could be built to Baltimore, that city — which paid a third of Maryland's taxes — would be called on to supply a great sum to benefit only her chief rivals. The bitter struggle which now developed is one of the most significant in commercial history because of its sequel.

The conditions underlying this rivalry must not be lost sight of. Baltimore had done more than any other Eastern city to ally herself with the West and to obtain its trade. She had instinctively responded to every move made by her rivals in the great game. If Pennsylvania promoted a Lancaster Turnpike, Baltimore threw out her superb Baltimore-Reisterstown boulevard, though her northern road to Philadelphia remained the slough that Brissot and Baily had found it. If New York projected an Erie Canal, Baltimore successfully championed the building of a Cumberland Road

by a governmental godmother. So thoroughly and quickly, indeed, did she link her system of stone roads to that great artery, that even today many well-informed writers seem to be under the impression that the Cumberland Road ran from the Ohio to Washington and Baltimore. Now, with canals building to the north of her and canals to the south of her, what of her prestige and future?

For the moment Baltimore compromised by agreeing to a Chesapeake and Ohio canal which, by a lateral branch, should still lead to her market square. Her scheme embraced a vision of conquest regal in its sweep, beyond that of any rival, and comprehending two ideas worthy of the most farseeing strategist and the most astute politician. It called not only for the building of a transmontane canal to the Ohio but also for a connecting canal from the Ohio to the Great Lakes. Not only would the trade of the Northwest be secured by this means — for this southerly route would not be affected by winter frosts as would those of Pennsylvania and New York — but the good godmother at Washington would be almost certain to champion it and help to build it since the proposed route was so thoroughly interstate in character. With the backing of Maryland, Virginia, Western

Pennsylvania, Ohio, and probably several States bordering the Inland Lakes, government aid in the undertaking seemed feasible and proper.

Theoretically the daring scheme captured the admiration of all who were to be benefited by it. At a great banquet at Washington, late in 1823, the project was launched. Adams, Clay, and Calhoun took the opportunity to ally themselves with it by robustly declaring themselves in favor of widespread internal improvements. Even the godmother smiled upon it for, following Monroe's recommendation, Congress without hesitation voted thirty thousand dollars for the preliminary survey from Washington to Pittsburgh. Quickly the Chesapeake and Ohio Canal Company and the connecting Maryland Canal Company were formed, and steps were taken to have Ohio promote an Ohio and Lake Erie Company.

As high as were the hopes awakened by this movement, just so deep was the dejection and chagrin into which its advocates were thrown upon receiving the report of the engineers who made the preliminary survey. The estimated cost ran towards a quarter of a billion, four times the capital stock of the company; and there were not lacking those who pointed out that the Erie Canal had cost

more than double the original appropriation made for it.

The situation was aggravated for Baltimore by the fact that Maryland and Virginia were willing to take half a loaf if they could not get a whole one: in other words, they were willing to build the canal up the Potomac to Cumberland and stop there. Baltimore, even if linked to this partial scheme, would lose her water connection with the West, the one prized asset which the project had held out, and her Potomac Valley rivals would, on this contracted plan, be in a particularly advantageous position to surpass her. But the last blow was yet to come. Engineers reported that a lateral canal connecting the Potomac and Chesapeake Bay was not feasible. It was consequently of little moment whether the Chesapeake and Ohio Canal could be built across the Alleghanies or not, for, even if it could have been carried through the Great Plains or to the Pacific, Baltimore was, for topographical reasons, out of the running.

The men of Baltimore now gave one of the most striking illustrations of spirit and pluck ever exhibited by the people of any city. They refused to accept defeat. If engineering science held a means of overcoming the natural disadvantages of

their position, they were determined to adopt that means, come what would of hardship, difficulty, and expenditure. If roads and canals would not serve the city on the Chesapeake, what of the railroad on which so many experiments were being made in England?

The idea of controlling the trade of the West by railroads was not new. As early as February, 1825, certain astute Pennsylvanians had advocated building a railroad to Pittsburgh instead of a canal, and in a memorial to the Legislature they had set forth the theory that a railroad could be built in one-third of the time and could be operated with one-third of the number of employees required by a canal, that it would never be frozen, and that its cost of construction would be less. But these arguments did not influence the majority, who felt that to follow the line of least resistance and to do as others had done would involve the least hazard. But Baltimore, with her back against the wall, did not have the alternative of a canal. It was a leap into the unknown for her or commercial stagnation.

It is regrettable that, as Baltimore began to break this fresh track, she should have had political as well as physical and mechanical obstacles to overcome. The conquest of the natural

difficulties alone required superhuman effort and endurance. But Baltimore had also to fight a miserable internecine warfare in her own State, for Maryland immediately subscribed half a million to the canal as well as to the newly formed Baltimore and Ohio Railroad. In rival pageants, both companies broke ground on July 4, 1828, and the race to the Ohio was on. The canal company clung doggedly to the idle belief that their enterprise was still of continental proportions, since it would connect at Cumberland with the Cumberland Road. This exaggerated estimate of the importance of the undertaking shines out in the pompous words of President Mercer, at the time when construction was begun:

> There are moments in the progress of time, which are counters of whole ages. There are events, the monuments of which, surviving every other memorial of human existence, eternize the nation to whose history they belong, after all other vestiges of its glory have disappeared from the globe. At such a moment have we now arrived.

This oracular language lacks the simple but winning straightforwardness of the words which Director Morris uttered on the same day near Baltimore

and which prove how distinctly Western the new railway project was held to be:

> We are about opening a channel through which the commerce of the mighty country beyond the Allegheny must seek the ocean — we are about affording facilities of intercourse between the East and West, which will bind the one more closely to the other, beyond the power of an increased population or sectional differences to disunite.

The difficulties which faced the Baltimore enthusiasts in their task of keeping their city "on the map" would have daunted men of less heroic mold. Every conceivable trial and test which nature and machinery could seemingly devise was a part of their day's work for twelve years — struggles with grades, locomotives, rails, cars. As Rumsey, Fitch, and Fulton in their experiments with boats had floundered despondently with endless chains, oars, paddles, duck's feet, so now Thomas and Brown in their efforts to make the railroad effective wandered in a maze of difficulties testing out such absurd and impossible ideas as cars propelled by sails and cars operated by horse treadmills. By May, 1830, however, cars on rails, running by "brigades" and drawn by horses, were in operation in America. It was only in this year

that in England locomotives were used with any marked success on the Liverpool and Manchester Railroad; yet in August of this year Peter Cooper's engine, *Tom Thumb*, built in Baltimore in 1829, traversed the twelve miles between that city and Ellicott's Mills in seventy-two minutes. Steel springs came in 1832, together with car wheels of cylindrical and conical section which made it easier to turn curves.

The railroad was just beginning to master its mechanical problems when a new obstacle confronted it in the Potomac Valley. It could not cross Maryland to the Cumberland mountain gateway unless it could follow the Potomac. But its rival, the canal, had inherited from the old Potomac Company the only earthly asset it possessed of any value — the right of way up the Maryland shore. Five years of quarreling now ensued, and the contest, though it may not have seriously delayed either enterprise, aroused much bitterness and involved the usual train of lawsuits and injunctions.

In 1833 the canal company yielded the railroad a right of way through the Point of Rocks — the Potomac chasm through the Blue Ridge wall, just below Harper's Ferry — on condition that the

railroad should not build beyond Harper's Ferry until the canal was completed to Cumberland. But probably nothing but the financial helplessness of the canal company could have brought a solution satisfactory to all concerned. A settlement of the long quarrel by compromise was the price paid for state aid, and, in 1835 Maryland subsidized to a large degree both canal and railroad by her famous eight million dollar bill. The railroad received three millions from the State, and the city of Baltimore was permitted to subscribe an equal amount of stock. With this support and a free right of way, the railroad pushed on up the Potomac. Though delayed by the financial disasters of 1837, in 1842 it was at Hancock; in 1851, at Piedmont; in 1852, at Fairmont; and the next year it reached the Ohio River at Wheeling.

Spurred by the enterprise shown by these Southerners, Pennsylvania and New York now took immediate steps to parallel their own canals by railways. The line of the Union Canal in Pennsylvania was paralleled by a railroad in 1834, the same year in which the Allegheny Portage Railway was constructed. New York lines reached Buffalo in 1842. The Pennsylvania Railroad, which was incorporated in 1846, was completed to Pittsburgh in 1854.

It is thus obvious that, with the completion of these lines and the building of the Chesapeake and Ohio Railway through the "Sapphire Country" of the Southern Alleghanies, the new railway era pursued its paths of conquest through the very same mountain passageways that had been previously used by pack-horseman and Conestoga and, in three instances out of four, by the canal boat. If one motors today in the Juniata Valley in Pennsylvania, he can survey near Newport a scene full of meaning to one who has a taste for history. Traveling along the heights on the highway that was once the red man's trail, he can enjoy a wide prospect from this vantage point. Deep in the valley glitters the little Juniata, route of the ancient canoe and the blundering barge. Beside it lies a long lagoon, an abandoned portion of the Pennsylvania Canal. Beside this again, as though some monster had passed leaving a track clear of trees, stretches the right of way of the first "Pennsylvania," and a little nearer swings the magnificent double-tracked bed of the railroad of today. Between these lines of travel may be read the history of the past two centuries of American commerce, for the vital factors in the development of the nation have been the evolution of transportation

and its manifold and far-reaching influence upon the expansion of population and commerce and upon the rise of new industries.

Thus all the rivals in the great contest for the trade of the West speedily reached their goal, New York with the Erie and the New York Central, and Pennsylvania and Maryland with the Pennsylvania and the Baltimore and Ohio. But what of this West for whose commerce the great struggle was being waged? When the railheads of these eager Atlantic promoters were laid down at Buffalo on Lake Erie and at Pittsburgh on the Ohio they looked out on a new world. The centaurs of the Western rivers were no less things of the far past than the tinkling bells borne by the ancient ponies of the pack-horse trade. The sons of this new West had their eyes riveted on the commerce of the Great Lakes and the Mississippi Valley. With road, canal, steamboat, and railway, they were renewing the struggle of their fathers but for prizes greater than their fathers ever knew.

New York again proved the favored State. Her Mohawk pathway gave her easiest access to the West and here, at her back door on the Niagara frontier, lay her path by way of the Great Lakes to the North and the Northwest.

CHAPTER X

THE PATHWAY OF THE LAKES

As one stands in imagination at the early railheads of the West — on the Ohio River at the end of the Cumberland Road, or at Buffalo, the terminus of the Erie Canal — the vision which Washington caught breaks upon him and the dream of a nation made strong by trans-Alleghany routes of commerce. Link by link the great interior is being connected with the sea. Behind him all lines of transportation lead eastward to the cities of the coast. Before him lies the giant valley where the Father of Waters throws out his two splendid arms, the Ohio and the Missouri, one reaching to the Alleghanies and the other to the Rockies. Northward, at the end of the Erie Canal, lies the empire of the Great Lakes, inland seas that wash the shores of a Northland having a coastline longer than that of the Atlantic from Maine to Mexico.

Ships and conditions of navigation were much

the same on the lakes as on the ocean. It was therefore possible to imagine the rise of a coasting trade between Illinois and Ohio as profitable as that between Massachusetts and New York. Yet the older colonies on the Atlantic had an outlet for trade, whereas the Great Lakes had none for craft of any size, since their northern shores lay beyond the international boundary. If there had been danger from Spain in the Southwest, what of the danger of Canada's control of the St. Lawrence River and of the trade of the Northwest through the Welland Canal which was to join Lake Ontario to Lake Erie? But in those days the possibility of Canadian rivalry was not treated with great seriousness, and many men failed to see that the West was soon to contain a very large population. The editor of a newspaper at Munroe, New York, commenting in 1827 on a proposed canal to connect Lake Erie with the Mississippi by way of the Ohio, believed that the rate of Western development was such that this waterway could be expected only "some hundred of years hence." Even so gifted a man as Henry Clay spoke of the proposed canal between Lake Michigan and Lake Superior in 1825 as one relating to a region beyond the pale of civilization "if not in the moon." Yet in twenty-five

years Michigan, which had numbered one thousand inhabitants in 1812, had gained two hundredfold, and Ohio, Indiana, and Illinois had their hundreds of thousands who were clamoring for ways and means of sending their surplus products to market.

Early in the century representatives of the Fulton-Livingston monopoly were at the shores of Lake Ontario to prove that their steamboats could master the waves of the inland sea and serve commerce there as well as in tidewater rivers. True, the luckless *Ontario*, built in 1817 at Sackett's Harbor, proved unseaworthy when the waves lifted the shaft of her paddle wheels off their bearings and caused them to demolish the wooden covering built for their protection; but the *Walk-in-the-Water*, completed at Black Rock (Buffalo) in August, 1818, plied successfully as far as Mackinac Island until her destruction three years later. Her engines were then inherited by the *Superior* of stronger build, and with the launching of such boats as the *Niagara*, the *Henry Clay*, and the *Pioneer*, the fleet builders of Buffalo, Cleveland, and Detroit proved themselves not unworthy fellow-countrymen of the old seafarers of Salem and Philadelphia.

But how were cargoes to reach these vessels

from the vast regions beyond the Great Lakes? Those thousands of settlers who poured into the Northwest had cargoes ready to fill every manner of craft in so short a space of time that it seems as if they must have resorted to arts of necromancy. It was not magic, however, but perseverance that had triumphed. The story of the creating of the main lakeward-reaching canals is long and involved. A period of agitation and campaigning preceded every such undertaking; and when construction was once begun, financial woes usually brought disappointing delays. When a canal was completed after many vicissitudes and doubts, traffic overwhelmed every method provided to handle it: locks proved altogether too small; boats were inadequate; wharfs became congested; blockades which occurred at locks entailed long delay. In the end only lines and double lines of steel rails could solve the problem of rapid and adequate transportation, but the story of the railroad builders is told elsewhere.[1]

Ohio and Illinois caught the canal fever even before the Erie Canal was completed, and the Ohio Canal and the Illinois-Michigan Canal saw

[1] See *The Railroad Builders*, by John Moody (in *The Chronicles of America*).

preliminary surveying done in 1822 and 1824 respectively. Ohio particularly had cause to seek a northern outlet to Eastern markets by way of Lake Erie. The valleys of the Muskingum, Scioto, and Miami rivers were producing wheat in large quantities as early as 1802, when Ohio was admitted to the Union. Flour which brought $3.50 a barrel in Cincinnati was worth $8 in New York. There were difficulties in the way of transportation. Sometimes ice prevented produce and merchandise from descending the Ohio to Cincinnati. At other times merchants of that city had as many as a hundred thousand barrels awaiting a rise in the river which would make it possible for boats to go over the falls at Louisville. As these conditions involved a delay which often seemed intolerable, the project to build canals to Lake Erie met with generous acclaim. A northward route, though it might be blocked by ice for a few months each winter, had an additional value in the eyes of numerous merchants whose wheat, sent in bulk to New Orleans, had soured either in the long delay at Louisville or in the semi-tropical heat of the Southern port.

The Ohio Legislature in 1822 authorized the survey of all possible routes for canals which would give Ohio an outlet for its produce on Lake Erie.

The three wheat zones which have been mentioned were favored in the proposed construction of two canals which, together, should satisfy the need of increased transportation: the Ohio Canal to connect Portsmouth on the Ohio River with Cleveland on Lake Erie and to traverse the richest parts of the Scioto and Muskingum valleys, and to the west the Miami Canal to pierce the fruitful Miami and Maumee valleys and join Cincinnati with Toledo. De Witt Clinton, the presiding genius of the Erie Canal, was invited to Ohio to play godfather to these northward arteries which should ultimately swell the profits of the commission merchants of New York City, and amid the cheers of thousands he lifted the first spadefuls of earth in each undertaking.

The Ohio Canal, which was opened in 1833, had a marked effect upon the commerce of Lake Erie. Before that date the largest amount of wheat obtained from Cleveland by a Buffalo firm had been a thousand bushels; but in the first year of its operation the Ohio Canal brought to the village of Cleveland over a quarter of a million bushels of wheat, fifty thousand barrels of flour, and over a million pounds of butter and lard. In return, the markets of the world sent into Ohio by canal in this same

year thirty thousand barrels of salt and above five million pounds of general merchandise.

Ever since the time when the Erie Canal was begun, Canadian statesmen had been alive to the strong bid New York was making for the trade of the Great Lakes. Their answer to the Erie Canal was the Welland Canal, built between 1824 and 1832 and connecting Lake Erie with Lake Ontario by a series of twenty-seven locks with a drop of three hundred feet in twenty-six miles. This undertaking prepared the way for the subsequent opening of the St. Lawrence canal system (183 miles) and of the Rideau system by way of the Ottawa River (246 miles). There was thus provided an ocean outlet to the north, although it was not until 1856 that an American vessel reached London by way of the St. Lawrence.

With the Hudson and the St. Lawrence in the East thus competing for the trade of the Great Lakes, it is not surprising that the call of the Mississippi for improved highways was presently heard. From the period of the War of 1812 onward the position of the Mississippi River in relation to Lake Michigan was often referred to as holding possibilities of great importance in the development of Western commerce. Already the

old portage-path links between the Fox and Wisconsin and the Chicago and Illinois rivers had been worn deep by the fur traders of many generations, and with the dawning of the new era enthusiasts of Illinois were pointing out the strategic position of the latter route for a great trade between Lake Michigan and the Gulf of Mexico. Thus the wave of enthusiasm for canal construction that had swept New York and Ohio now reached Indiana and Illinois. Indian ownership of land in the latter State for a moment seemed to block the promotion of the proposed Illinois and Michigan Canal, but a handsome grant of a quarter of a million acres by the Federal Government in 1827 came as a signal recognition of the growing importance of the Northwest; and an appropriation for the lighting and improving of the harbor of the little village of Chicago was hailed by ardent promoters as sure proof that the wedding of Lake Michigan and the Mississippi was but a matter of months.

All the difficulties encountered by the advocates of earlier works of this character, in the valleys of the Potomac, the Susquehanna, and the Mohawk, were the portion of these dogged promoters of Illinois. Here, as elsewhere, there were rival routes and methods of construction, opposition of

jealous sections not immediately benefited, estimates which had to be reconsidered and augmented, and so on. The land grants pledged to pay the bonds were at first of small value, and their advance in price depended on the success of the canal itself, which could not be built — unless the State underwrote the whole enterprise — if the lands were not worth the bonds. Thus the argument ran in a circle, and no one could foresee the splendid traffic and receipts from tolls that would result from the completed canal.

The commissioners in charge of the project performed one interesting service in these early days by putting Chicago on the map; but the two terminals, Ottawa on the Illinois and Chicago on Lake Michigan — both plotted in 1830 — were very largely figures of speech at that time. The day of miracles was at hand, however, for the little town of one hundred people at the foot of Lake Michigan. The purchase of the lands of the Potawatomies, the Black Hawk War in 1832, which brought steamboats to Chicago for the first time, and the decision of Illinois in 1836 to pledge her good name in favor of the Illinois and Michigan Canal made Chicago a city of four thousand people by the panic year of 1837. So absorbed were these Chicago

folk in the building of their canal and in wresting from their lake firm foothold for a city (reclaiming four hundred feet of lake bed in two years) that the panic affected their town less than it did many a rival. Although the canal enterprise came to an ominous pause in 1842, after the expenditure of five millions, the pledge of the State stood the enterprise in good stead. Local financiers, together with New York and Boston promoters, advanced about a quarter of a million, while French and English bankers, notably Baring Brothers, contributed about three-quarters of a million. With this assistance the work was carried to a successful ending. On April 10, 1848, the first boat passed over the ninety-mile route from Chicago to Ottawa, and the Great Lakes and the Mississippi Basin were united by this Erie Canal of the West. Though its days of greatest value were soon over, no one can exaggerate the importance of this waterway in the growth and prosperity of Chicago between 1848 and 1860. By 1857 Chicago was sending north and south annually by boat over twenty million bushels of wheat and corn.

The awakening of the lands behind Lake Erie, Lake Huron, and Lake Michigan brought forth innumerable demands for roads, canals, and railways

to the ports of Buffalo, Cleveland, Toledo, Detroit, Milwaukee, and Chicago. There were actually hundreds of these enterprises undertaken. The development of the land behind Lake Superior was particularly spectacular and important, not only because of its general effect on the industrial world but also because out of it came the St. Mary's River Ship Canal. Nowhere in the zone of the Great Lakes has any region produced such unexpected changes in American industrial and commercial life as did the region of Michigan, Wisconsin, and Minnesota contributory to Lake Superior. If, as the story goes, Benjamin Franklin said, when he drew at Paris the international boundary line through Lake Superior, that this was his greatest service to America, he did not exaggerate. The line running north of Isle Royale and thence to the Lake of the Woods gave the United States the lion's share of that great inland seaboard and the inestimably rich deposits of copper and iron that have revolutionized American industry.

From earliest days rumors of deposits of bright copper in the land behind Lake Superior had been reported by Indians to fur traders who in turn had passed the story on to fur company agents and thus to the outside world. As a result of her "Toledo

War" — as her boundary dispute was called — Michigan had reluctantly accepted the northern peninsula lying between Lake Superior and Lake Michigan in lieu of the strip of Ohio territory which she believed to be hers. If Michigan felt that she had lost by this compromise, her state geologist, Douglass Houghton, soon found a splendid jewel in the toad's head of defeat, for the report of his survey of 1840 confirmed the story of the existence of large copper deposits, and the first rush to El Dorado followed. Amid the usual chaos, conflict, and failure incident to such stampedes, order and system at last triumphed and the richest copper mines of the New World were uncovered. Then came the unexpected finding of the mammoth iron-ore beds by William A. Burt, inventor of the solar compass. The circumstance of this discovery is of such national importance that a contemporary description by a member of Burt's party which was surveying a line near Marquette, Michigan, is worth quoting:

I shall never forget the excitement of the old gentleman when viewing the changes of the variation. He kept changing his position to take observations, all the time saying "How would they survey this country without my compass" and "What could be done here

without my compass." At length the compassman called for us all to "come and see a variation which will beat them all." As we looked at the instrument, to our astonishment, the north end of the needle was traversing a few degrees to the south west. Mr. Burt called out "Boys, look around and see what you can find." We all left the line, some going to the east, some going to the west, and all of us returned with specimens of iron ore.

But it was not enough that this Aladdin's Land in the Northwest should revolutionize the copper and steel industry of the world, for as soon as the soil took to its bosom an enterprising race of agriculturists it bade fair to play as equally important a part in the grain industry. Copper and iron no less came out of the blue of this cold northern region than did the mighty crops of Minnesota wheat, corn, and oats. In the decade preceding the Civil War the export of wheat from Lake Superior rose from fourteen hundred bushels to three and a quarter millions of bushels, while in 1859 nearly seven million bushels of corn and oats were sent out to the world.

The commerce of Lake Superior could not await the building of a canal around the foaming rapids of the St. Mary's River, its one outlet to the lower lakes. In the decade following the discovery of

copper and iron more than a dozen ships, one even of as much as five hundred tons, were hauled bodily across the portage between Lake Huron and Lake Superior. The last link of navigation in the Great Lake system, however, was made possible in 1852 by a grant by Congress of 750,000 acres of Michigan land. Although only a mile in length, the work proved to be of unusual difficulty since the pathway for the canal had to be blasted throughout practically its whole length out of solid rock. It was completed in 1855, and the princely empire "in the moon" was in a position to make its terms with the coal fields of Pennsylvania and to usher in the iron age of transportation and construction.

It is only in the light of this awakening of the lands around the Great Lakes that one can see plainly the task which fell to the lot of the successors of the frail *Walk-in-the-Water* and sturdier *Superior* of the early twenties. For the first fifteen years the steamboat found its mission in carrying the thousands of emigrants pouring into the Northwest, a heterogeneous multitude which made the Lake Erie boats seem, to one traveler at least, filled with "men, women and children, beds, cradles, kettles, and frying pans." These craft were built after the pattern of the *Walk-in-the-Water* —

side-wheelers with a steering wheel at the stern. No cabins or staterooms on deck were provided; and amid such freight as the thriving young towns provided were to be found the twenty or thirty cords of wood which the engines required as fuel.

The second period of steamboating began with the opening of the Ohio Canal and the Welland Canal about 1834 and extended another fifteen years to the middle of the century, when it underwent a transformation owing to the great development of Chicago, the completion of the Illinois and Michigan and St. Mary's canals, and the new railways. This second period was marked by the building of such steamers as the *Michigan*, the *Great Western*, and the *Illinois*. These were the first boats with an upper cabin and were looked upon with marked suspicion by those best acquainted with the severe storms upon the Great Lakes. The *Michigan*, of 475 tons, built by Oliver Newberry at Detroit in 1833, is said to have been the first ship of this type. These boats proved their seaworthiness and caused a revolution in the construction of lake craft. Later in this period freight transportation saw an equally radical advance with the building of the first propellers. The sloop-rigged *Vandalia*, built by Sylvester Doolittle

at Oswego on Lake Ontario in 1841–42, was the first of the propeller type and was soon followed by the *Hercules*, the *Samson*, and the *Detroit*.

One very great handicap in lake commerce up to this time had been the lack of harbors. Detroit alone of the lake ports was distinctly favored in this respect. The harbors of Buffalo, Cleveland, Milwaukee, and Chicago were improved slowly, but it was not until the great Chicago convention of 1846 that the nation's attention was focused on the needs of Western rivers and harbors, and there dawned a new era of lighthouses and buoys, breakwaters and piers, and dredged channels. Another handicap to the volume of business which the lake boats handled in the period just previous to the Civil War was the inadequacy of the feeders, the roads, riverways, and canals. The Erie Canal was declared too small almost before the cries of its virulent opponents had died away, and the enlargement of its locks was soon undertaken. The same thing proved true of the Ohio and Illinois canals. The failure of the Welland Canal was similarly a very serious handicap. Although its locks were enlarged in 1841, it was found by 1850 that despite the improvements it could not admit more than about one-third of the grain-carrying

boats, while only one in four of the new propellers could enter its locks.

As late as the middle forties men did not in the least grasp the commercial situation which now confronted the Northwest nor could they foresee that the land behind the Great Lakes was about to deluge the country with an output of produce and manufactures of which the roads, canals, ships, wharfs, or warehouses in existence could handle not a tenth part. They did not yet understand that this trade was to become national. It was well on in the forties before the Galena lead mines, for instance, were given up as the terminal of the Illinois Central Railroad and the main line was directed to Chicago. The middle of the century was reached before the Lake Shore was considered at Cleveland or Chicago as important commercially as the neighboring portage paths which by the Ordinance of 1787 had been created "common highways forever free." The idea of joining Buffalo, Cleveland, and Chicago with the interior — an idea as old as the Indian trails thither — still dominated men's minds even in the early part of the railroad epoch. Chicago desired to be connected with Cairo, the ice-free port on the Mississippi; and Cleveland was eager to be joined to Columbus

and Cincinnati. The enthusiastic railway promoters of Ohio, Indiana, and Illinois drew splendid plans for uniting all parts of those States by railway lines; but the strategic position of the cities on the continental alignment from New York to the Pacific by way of South Pass never came within their horizon. The ten million dollar Illinois scheme did not even contemplate a railway running eastward from Chicago. But the future of the commerce of the Great Lakes depended absolutely upon this development. There was no hope of any canals being able to handle the traffic of the mighty empire which was now awake and fully conscious of its power. The solution lay in joining the cities to each other and to the Atlantic world markets by iron rails running east and west.

This railroad expansion is what makes the last decade before the Civil War such a remarkable series of years in the West. In the half decade, 1850–55, the Baltimore and Ohio and Pennsylvania railways reached the Ohio River; the links of the present Lake Shore system between Buffalo and Chicago by way of Cleveland and Toledo were constructed; and the Pennsylvania line was put through from Pittsburgh to Chicago. The place of the lake country on the continental alignment

and the imperial situation of Chicago, and later of Omaha, came to be realized. The new view transformed men's conceptions of every port on the Great Lakes in the chain from Buffalo to Chicago. At a dozen southern ports on Ontario, Erie, Huron, and Michigan, commerce now touched the swiftest and most economical means of transcontinental traffic. This development culminated in the miracle we call Chicago. In 1847 not a line of rail entered the town; its population then numbered about twenty-five thousand and its property valuation approximated seven millions. Ten years later four thousand miles of railway connected with all four points of the compass a city of nearly one hundred thousand people, and property valuation had increased five hundred per cent. The growth of Buffalo, Cleveland, and Detroit during this period was also phenomenal.

When the crisis of 1861 came, the service performed by the *Walk-in-the-Water* and her successors was seen in its true light. The Great Lakes as avenues of migration had played a providential part in filling a northern empire with a proud and loyal race; from farm and factory regiment on regiment marched forth to fight for unity; from fields without number produce to sustain a nation on

trial poured forth in abundance; enormous quantities of iron were at hand for the casting of cannon and cannon balls; and, finally, pathways of water and steel were in readiness in the nick of time to carry these resources where they would count tremendously in the four long years of conflict.

CHAPTER XI

THE STEAMBOAT AND THE WEST

Two great fields of service lay open before those who were to achieve by steam the mastery of the inland waterways. On the one hand the cotton kingdom of the South, now demanding great stores of manufactured goods, produce, and machinery, was waiting to be linked to the valleys and industrial cities of the Middle West; and, on the other hand, along those great eastward and westward rivers, the Ohio and Missouri, lay the commerce of the prairies and the Great Plains. But before the steamboat could serve the inland commerce of the West, it had to be constructed on new lines. The craft brought from the seaboard were of too deep draft to navigate shallow streams which ran through this more level country.

The task of constructing a great inland river marine to play the dual rôle of serving the cotton empire and of extending American migration and

commerce into the trans-Mississippi region was solved by Henry Shreve when he built the *Washington* at Wheeling in 1816. Shreve was the American John Hawkins. Hawkins, that sturdy old admiral of Elizabethan days, took the English ship of his time, trimmed down the high stern and poop decks, and cut away the deep-lying prow and stern, after the fashion of our modern cup defenders, and in a day gave England the key to sea mastery in the shape of a new ship that would take sail and answer her rudder beyond anything the maritime world until then had known. Shreve, like Hawkins, flagrantly ignoring the conventional wisdom of his day and craft, built the *Washington* to sail *on* the water instead of *in* it, doing away altogether with a hold and supplying an upper deck in its place.

To few inventors, indeed, does America owe a greater debt of thanks than to this Ohio River shipbuilder. A dozen men were on the way to produce a *Clermont* had Fulton failed; but Shreve had no rival in his plan to build a flat-bottomed steamboat. The remarkable success of his design is attested by the fact that in two decades the boats built on his model outweighed in tonnage all the ships of the Atlantic seaboard and Great Lakes

combined. Immediately the Ohio became in effect the western extension of the great national highway and opened an easy pathway for immigration to the eastern as well as the western lands of the Mississippi Basin. The story goes that an old phlegmatic negro watched the approach of one of the first steamboats to the wharf of a Southern city. Like many others, he had doubted the practicability of this new-fangled Yankee notion. The boat, however, came and went with ease and dispatch. The old negro was converted. "By golly," he shouted, waving his cap, "the Mississippi's got her Massa now."

The Mississippi had indeed found her master, but only by slow degrees and after intervals of protracted rebellion did she succumb to that master. Luckily, however, there was at hand an army of unusual men — the "alligator-horses" of the flatboat era — upon whom the steamboat could call with supreme confidence that they would not fail. Theodore Roosevelt has said of the Western pioneers that they "had to be good and strong — especially, strong." If these men upon whom the success of the steamboat depended were not always good, they were beyond any doubt behemoths in strength.

The task before them, however, was a task worthy

of Hercules. The great river boldly fought its conquerors, asking and giving no quarter, biding its time when opposed by the brave but crushing the fearful on sight. In one respect alone could it be depended upon — it was never the same. It is said to bring down annually four hundred million tons of mud, but its eccentricity in deciding where to wash away and where to deposit its load is still the despair of river pilots. The great river could destroy islands and build new ones overnight with the nonchalance of a child playing with clay. It could shorten itself thirty miles at a single lunge. It could move inland towns to its banks and leave river towns far inland. It transferred the town of Delta, for instance, from three miles below Vicksburg to two miles above it. Men have gone to sleep in one State and have wakened unharmed in another, because the river decided in the night to alter the boundary line. In this way the village of Hard Times, the original site of which was in Louisiana, found itself eventually in Mississippi. Were La Salle to descend the river today by the route he traversed two and a half centuries ago, he would follow dry ground most of the way, for the river now lies practically everywhere either to the right or left of its old course.

If the Mississippi could perform such miracles upon its whole course without a show of effort, what could it not do with the little winding canal through its center called by pilots the "channel"? The flatboatmen had laboriously acquired the art of piloting the commerce of the West through this mazy, shifting channel, but as steamboats developed in size and power the man at the wheel had to become almost a superman. He needed to be. He must know the stage of water anywhere by a glance at the river banks. He must guess correctly the amount of "fill" at the head of dangerous chutes, detect bars "working down," distinguish between bars and "sand reefs" or "wind reefs" or "bluff reefs" by night as well as by day, avoid the "breaks" in the "graveyard" behind Goose Island, navigate the Hat Island chutes, or find the "middle crossing" at Hole-in-the-Wall. He must navigate his craft in fogs, in storms, in the face of treacherous winds, on black nights, with thousands of dollars' worth of cargo and hundreds of lives at stake.

As the golfer knows each knoll and tuft of grass on his home links, so the pilot learned his river by heart. Said one of these pilots to an apprentice:

> You see this has got to be learned. . . . A clear starlight night throws such heavy shadows that if you

didn't know the shape of a shore perfectly you would claw away from every bunch of timber because you would take the black shadow of it for a solid cape; and you see you would be getting scared to death every fifteen minutes by the watch. You would be fifty yards from shore all the time when you ought to be within fifty feet of it. You can't see a snag in one of those shadows, but you know exactly where it is, and the shape of the river tells you when you are coming to it. Then there's your pitch-dark night; the river is a very different shape on a pitch-dark night from what it is on a starlight night. All shores seem to be straight lines, then, and mighty dim ones, too; and you'd *run* them for straight lines only you know better. You boldly drive your boat right into what seems to be a solid, straight wall (you knowing very well that in reality there is a curve there) and that wall falls back and makes way for you. Then there's your gray mist. You take a night when there's one of these grisly, drizzly, gray mists, and then there isn't *any* particular shape to a shore. A gray mist would tangle the head of the oldest man that ever lived. Well, then, different kinds of *moonlight* change the shape of the river in different ways. . . . You only learn the shape of the river; and you learn it with such absolute certainty that you can always steer by the shape that's *in your head* and never mind the one that's before your eyes.[1]

No wonder that the two hundred miles of the Mississippi from the mouth of the Ohio to St. Louis

[1] Mark Twain, *Life on the Mississippi*, pp. 103–04.

in time contained the wrecks of two hundred steamboats.

The river trade reached its zenith between 1840 and 1860, in the two decades previous to the Civil War, that period before the railroads began to parallel the great rivers. It was a time which saw the rise of Ohio, Indiana, Illinois, Missouri, Iowa, and Arkansas, and which witnessed the spread of the cotton kingdom into the Southwest. The story of King Cotton's conquest of the Mississippi South is best told in statistics. In 1811, the year of the first voyage which the *New Orleans* made down the Ohio River, Tennessee, Louisiana, and Mississippi exported five million pounds of cotton. In 1834 these same States exported almost two hundred million pounds of cotton. To take care of this crop and to supply the cotton country, which was becoming wealthy, with the necessaries and luxuries of life, more and more steamboats were needed. The great shipyards situated, because of the proximity of suitable timber, at St. Louis, Cincinnati, and Louisville became busy hives, not since paralleled except by such centers of shipbuilding as Hog Island in 1917–18, during the time of the Great War. The steamboat tonnage of the Mississippi Valley (exclusive of New Orleans) in

the hustling forties exceeded that of the Atlantic ports (exclusive of New York City) by 15,000 tons. The steamboat tonnage of New Orleans alone in 1843 was more than double that of New York City.

Those who, if the old story is true, ran in fear to the hills when the little *New Orleans* went puffing down the Ohio, in 1811, would have been doubly amazed at the splendid development in the art of boat building, could they have seen the stately *Sultana* or *Southern Belle* of the fifties sweep swiftly by. After a period of gaudy ornamentation (1830–40) steamboat architecture settled down, as has that of Pullman cars today, to sane and practical lines, and the boats gained in length and strength, though they contained less weight of timber. The value of one of the greater boats of this era would be about fifty thousand dollars. When Captain Bixby made his celebrated night crossing at Hat Island a quarter of a million dollars in ship and cargo would have been the price of an error in judgment, according to Mark Twain,[1] a good authority.

The *Yorktown*, built in 1844 for the Ohio-Mississippi trade, was typical of that epoch of inland commerce. Her length was 182 feet, breadth of beam 31 feet, and the diameter of wheels 28 feet.

[1] *Op. cit.*, p. 101.

Though her hold was 8 feet in depth, yet she drew but 4 feet of water light and barely over 8 feet when loaded with 500 tons of freight. She had 4 boilers, 30 feet long and 42 inches in diameter, double engines, and two 24-inch cylinders. The state-room cabin had come in with Captain Isaiah Sellers's *Prairie* in 1836, the first boat with such luxuries ever seen in St. Louis, according to Sellers. The *Yorktown* had 40 private cabins. It is interesting to compare the *Yorktown* with *The Queen of the West*, the giant British steamer built for the Falmouth-Calcutta trade in 1839. *The Queen of the West* had a length of 310 feet, a beam of 31 feet, a draft of 15 feet, and 16 private cabins. The building of this great vessel led a writer in the New York *American* to say: "It would really seem that we as a nation had no interest in this new application of steam power, or no energy to appropriate it to our own use." The statement — written in a day when the Mississippi steamboat tonnage exceeded that of the entire British Empire — is one of the best examples of provincial ignorance concerning the West.

On these steamboats there was a multiplicity of arrangements and equipments for preventing and for fighting fire. One of the innovations on the

new boats in this particular was the substitution of wire for the combustible rope formerly used to control the tiller, so that even in time of fire the pilot could "hold her nozzle agin' the bank." Much of the great loss of life in steamboat fires had been due to the tiller-ropes being burned and the boats becoming unmanageable.

The arrival of the railroad at the head of the Ohio River in the early fifties brought the East into an immediate touch with the Mississippi Valley unknown before. But however bold railway engineers were in the face of the ragged ranges of the Alleghanies, they could not then out-guess the tricks of the Ohio, the Mississippi, or the Missouri, and railway promoters could not afford to take chances on having their stations and tracks unexpectedly isolated, if not actually carried away, by swirling, yellow floods. The Mississippi, too, had been known at times to achieve a width of seventy miles, and tributaries have overflowed their banks to a proportionate extent. It was several decades ere the Ohio was paralleled by a railway, and the Mississippi for long distances even today has not yet heard the shrill cry of the locomotive. So the steamboat entered its heyday and encountered little competition. Until the Civil

War the rivers of the West remained the great arteries of trade, carrying grain and merchandise of every description southward and bringing back cotton, rice, and sugar.

The rivalries of the great lines of packets established in these days of the steamboat, however, equaled anything ever known in railway competition, and, in the matter of fast time, became more spectacular than anything of its kind in any line of transportation in our country. With flags flying, boilers heated white with abundance of pine and resin, and bold and skillful pilots at the steering wheels, no sport of kings ever aroused the enthusiasm of hundreds of thousands to such a pitch as did many of the old-time races northward from New Orleans.

The *J. M. White* and her performances stand out conspicuously in the annals of the river. Her builder, familiarly known to a generation of rivermen as Billy King, deserves to rank with Henry Shreve. Commissioned in 1844 to build the *J. M. White* for J. M. Converse of St. Louis, with funds supplied by Robert Chouteau of that city, King proceeded to put into effect the knowledge which he had derived from a close study of the swells made by steamboats when under way. When the

boat was being built in the famous shipyards at Elizabeth, on the Monongahela, the wheel beams were set twenty feet farther back than was customary. Converse was struck with this unheard-of radicalism in design, and balked; King was a man given to few words; he was resolved to throw convention to the winds and trust his judgment; he refused to build the boat on other lines. Converse felt compelled to let Chouteau pass on the question; in time the laconic answer came: "Let King put the beams where he pleases."

Thus the craft which Converse thought a monstrosity became known far and wide for both its design and its speed. In 1844 the *J. M. White* made the record of three days, twenty-three hours, and nine minutes between New Orleans and St. Louis.[1] Of course the secret of Billy King's success soon became known. He had placed his paddle wheels where they would bite into the swell

[1] This performance is illustrated by the following comparative table showing the best records of later years between New Orleans and St. Louis, a distance estimated in 1844 as 1300 miles but in 1870 as 1218 miles, owing to the action of the river in shortening its course.

Year	Boat	Time
1844	*J. M. White*	3 d. 23 h. 9 m.
1849	*Missouri*	4 d. 19 h. —
1869	*Dexter*	4 d. 9 h. —
1870	*Natchez*	3 d. 21 h. 58 m.
1870	*R. E. Lee*	3 d. 18 h. 14 m.

produced by every boat just under its engines. He had transformed what had been a handicap into a positive asset. It is said that he attempted to shield his prize against competition by destroying the model of the *J. M. White*, as well as to have refused large offers to build a boat that would beat her. But it is said also that an exhibition model of the boat was a cherished possession of E. M. Stanton, Secretary of War, and that it hung in his office during Lincoln's administration.

The steamboat now extended its service to the West and North. The ancient fur trade with the Indians of the upper Mississippi, the Missouri, and the Arkansas, had its headquarters at St. Louis, whence the notable band of men engaged in that trade were reaching out to the Rockies. The roll includes Ashley, Campbell, Sublette, Manuel Lisa, Perkins, Hempstead, William Clark, Labadie, the Chouteaus, and Menard — men of different races and colors and alike only in their energy, bravery, and initiative. Through them the village of St. Louis had grown to a population of four thousand in 1819, when Major Long's expedition passed up the Missouri in the first steamboat to ascend that river. This boat, the *Western Engineer*, was built at Pittsburgh and was modeled cunningly for its

work. It was one of the first stern wheelers built in the West; and the saving in width meant much on streams having such narrow channels as the Missouri and the Platte, especially when barges were to be towed. Then, too, its machinery, which was covered over or boarded up, was shrouded in mystery. A fantastic figure representing a serpent's open mouth contained the exhaust pipe. If the *New Orleans* alarmed the population of the Ohio Valley, the sensation caused among the red children of the Missouri at the sight of this gigantic snake belching fire and smoke must have thoroughly satisfied the whim of its designer.

The admission of Missouri to statehood and the independence of Mexico mark the beginning of real commercial relations between St. Louis and Santa Fé. In 1822 Captain William Becknell organized the first wagon train which left the Missouri (at Franklin, near Independence) for the long dangerous journey to the Arkansas and on to Santa Fé. In the following year two expeditions set forth, carrying out cottons and other drygoods to exchange for horses, mules, furs, and silver.

Despite the handicaps of Indian opposition and Mexican tariffs, the Santa Fé trade became an important factor in the growth of St. Louis and the

Missouri River steamboat lines. In 1825 the pathway was "surveyed" from Franklin to San Fernando, then in Mexico. This Santa Fé trade grew from fifteen thousand pounds of freight in 1822 to nearly half a million pounds twenty years later.

By 1826 steamboat traffic up the Missouri began to assume regularity. The navigation was dangerous and difficult because the Missouri never kept even an approximately constant head of water. In times of drought it became very shallow, and in times of flood it tore its wayward course open in any direction it chose. "Of all variable things in creation," wrote a Western editor, "the most uncertain are the action of a jury, the state of a woman's mind, and the condition of the Missouri River." A further handicap, and one which was unknown on the Ohio and rare on the Mississippi, was the lack of forests to supply the necessary fuel. The Missouri, it is true, had its cottonwoods, but in a green state they were poor fuel, and along vast stretches they were not obtainable in any quantity.

The steamboat linked St. Louis with that vital stretch of the river lying between the mouth of the Kansas and the mouth of the Nebraska. From this region the great Western trail ran on to California and Oregon. In the early thirties

Bonneville, Walker, Kelley, and Wyeth successively essayed this Overland Trail by way of the Platte through the South Pass of the Rockies to the Humboldt, Snake, and Columbia rivers. From Independence on the Missouri this famous pathway led to Fort Laramie, a distance of 672 miles; another 300-mile climb brought the traveler through South Pass; and so, by way of Fort Bridger, Salt Lake, and Sutter's Fort, to San Francisco. The route, well known by hundreds of Oregon pioneers in the early forties, became a thoroughfare in the eager days of the Forty-Niners.[1]

The earliest overland stage line to Great Salt Lake was established by Hockaday and Liggett. After the founding of the famous Overland Stage Company by Russell, Majors, and Waddell in 1858, stages were soon ascending the Platte from the steamboat terminals on the Missouri and making the twelve hundred miles from St. Joseph to Salt Lake City in ten days. Stations were established from ten to fifteen miles apart, and the line was soon extended on to Sacramento. The nineteen hundred miles from St. Joseph to Sacramento were made in fifteen days, although the government

[1] For map see *The Passing of the Frontier*, by Emerson Hough (in *The Chronicles of America*).

contract with the company for handling United States mail allowed nineteen days. A host of employees was engaged in this exciting but not very remunerative enterprise—station-agents and helpers, drivers, conductors who had charge of passengers, in addition to mail and express and road agents who acted as division superintendents. In 1862 the Overland Route was taken over by the renowned Ben Holliday, who operated it until the railway was constructed seven years later. Freight was hauled by the same company in wagons known as the "J. Murphy wagons," which were made in St. Louis. These wagons went out from Leavenworth loaded with six thousand pounds of freight each. A train usually consisted of twenty-five wagons and was known, in the vernacular of the plains, as a "bull-outfit"; the drivers were "bull-whackers"; and the wagon master was the "bull-wagon boss."

The old story, however, was repeated again here on the boundless plains of the West. The Western trails streaming out from the terminus of steamboat traffic between Kansas City and Omaha had scarcely time to become well known before the railway conquerors of the Atlantic and Great Lakes regions were planning the conquest of the greater plains and the Rockies beyond. The opening of

the Chinese ports in 1844 turned men's minds as never before to the Pacific coast. The acquisition of Oregon within a few years and of California at the close of the Mexican War opened the way for a newspaper and congressional discussion as to whether the first railway to parallel the Santa Fé or the Overland Trail should run from Memphis, St. Louis, or Chicago. The building of the Union Pacific from Omaha westward assured the future of that city, and it was soon joined to Chicago and the East by several lines which were building toward Clinton, Rock Island, and Burlington.

But the construction of a few main lines of railway across the continent could only partially satisfy the commercial needs of the West. True, the overland trade was at once transferred to the railroad, but the enormous equipment of stage and express companies previously employed in westward overland trade was now devoted to joining the railway lines with the vast regions to the north and the south. The rivers of the West could not alone take care of this commerce and for many years these great transportation companies went with their stages and their wagons into the growing Dakota and Montana trade and opened up direct lines of communication to the nearest railway. On the

south the cattle industry of Texas came northward into touch with the railways of Kansas. Eventually lateral and trunk lines covered the West with their network of lines and thus obliterated all rivalry and competition by providing unmatched facilities for quick transportation.

In the last days previous to the opening of the first transcontinental railway line a unique method of rapid transportation for mail and light parcels was established when the famous "Pony Express" line was put into operation between St. Joseph and San Francisco in 1860. By relays of horsemen, who carried pouches not exceeding twenty pounds in weight, the time was cut to nine days. The innovation was the new wonder of the world for the time being and led to an outburst on the part of the enthusiastic editor of the St. Joseph *Free Democrat* that deserves reading because it breathes so fully the Western spirit of exultant conquest:

> Take down your map and trace the footprints of our quadrupedantic animal: From St. Joseph, on the Missouri, to San Francisco, on the Golden Horn — two thousand miles — more than half the distance across our boundless continent; through Kansas, through Nebraska, by Fort Kearney, along the Platte, by Fort Laramie, past the Buttes, over the Mountains, through the narrow passes and along the steep defiles,

Utah, Fort Bridger, Salt Lake City, he witches Brigham with his swift pony-ship — through the valleys, along the grassy slopes, into the snow, into the sand, faster than Thor's Thialfi, away they go, rider and horse — did you see them? They are in California, leaping over its golden sands, treading its busy streets. The courser has unrolled to us the great American panorama, allowed us to glance at the home of one million people, and has put a girdle around the earth in forty minutes. Verily the riding is like the riding of Jehu, the son of Nimshi for he rideth furiously. Take out your watch. We are eight days from New York, eighteen from London. The race is to the swift.[1]

The lifetime of many and many a man has covered a period longer than that interval of eighty-six years between 1783, when George Washington had his vision of "the vast inland navigation of these United States," and the year 1869, when the two divisions of the Union Pacific were joined by a golden spike at Promontory Point in Utah. In point of time, those eighty-six years are as nothing; in point of accomplishment, they stand unparalleled. When Washington's horse splashed across the Youghiogheny in October, 1784, the boundary lines of the United States were guarded with all the jealousy and provincial selfishness of European kingdoms. But overnight, so to speak, these

[1] Quoted in Inman's *The Great Salt Lake Trail*, p. 171.

limitations became no more than mere geometrical expressions. "Pennamite," "Erie," and "Toledo" wars between the States, suggesting a world of bitterness and recrimination, are remembered today, if at all, only by the cartoonist and the playwright. The ancient false pride in mock values, so cherished in Europe, has quite departed from the provincial areas of the United States, and Americans can fly in a day, unwittingly, through many States. Problems that would have cost Europe blood are settled without turmoil in the solemn cloisters of that American "international tribunal," the Supreme Court, and they appear only as items of passing interest in our newspapers.

In unifying the nation the influence of the Supreme Court has been priceless, for it has given to Americans, in place of the colonial or provincial mind, a continental mind. But great is the debt of Americans to the men who laid the foundations of interstate commerce. No antidote served so well to counteract the poison of clannish rivalry as did their enthusiasm and their constructive energy. These men, dreamers and promoters, were building better than they knew. They thought to overcome mountains, obliterate swamps, conquer stormy lakes, master great rivers and endless plains;

but, as their labors are judged today, the greater service which these men rendered appears in its true light. They stifled provincialism; they battered down Chinese Walls of prejudice and separatism; they reduced the aimless rivalry of bickering provinces to a businesslike common denominator; and, perhaps more than any class of men, they made possible the wide-spreading and yet united Republic that is honored and loved today.

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PART II

THE RAILROAD BUILDERS

A CHRONICLE
OF THE WELDING OF THE STATES
BY
JOHN MOODY

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THE RAILROAD BUILDERS

CHAPTER I

A CENTURY OF RAILROAD BUILDING

The United States as we know it today is largely the result of mechanical inventions, and in particular of agricultural machinery and the railroad. One transformed millions of acres of uncultivated land into fertile farms, while the other furnished the transportation which carried the crops to distant markets. Before these inventions appeared, it is true, Americans had crossed the Alleghanies, reached the Mississippi Valley, and had even penetrated to the Pacific coast; thus in a thousand years or so the United States might conceivably have become a far-reaching, straggling, loosely jointed Roman Empire, depending entirely upon its oceans, internal watercourses, and imperial highways for such economic and political integrity as it might

achieve. But the great miracle of the nineteenth century — the building of a new nation, reaching more than three thousand miles from sea to sea, giving sustenance to more than one hundred million free people, and diffusing among them the necessities and comforts of civilization to a greater extent than the world had ever known before — is explained by the development of harvesting machinery and of the railroad.

The railroad is sprung from the application of two fundamental ideas — one the use of a mechanical means of developing speed, the other the use of a smooth running surface to diminish friction. Though these two principles are today combined, they were originally absolutely distinct. In fact there were railroads long before there were steam engines or locomotives. If we seek the real predecessor of the modern railroad track, we must go back three hundred years to the wooden rails on which were drawn the little cars used in English collieries to carry the coal from the mines to tidewater. The natural history of this invention is clear enough. The driving of large coal wagons along the public highway made deep ruts in the road, and some ingenious person began repairing the damage by laying wooden planks in the furrows.

The coal wagons drove over this crude roadbed so successfully that certain proprietors started constructing special planked roadways from the mines to the river mouth. Logs, forming what we now call "ties," were placed crosswise at intervals of three or four feet, and upon these supports thin "rails," likewise of wood, were laid lengthwise. So effectually did this arrangement reduce friction that a single horse could now draw a great wagon filled with coal — an operation which two or three teams, lunging over muddy roads, formerly had great difficulty in performing. In order to lengthen the life of the road, a thin sheeting of iron was presently laid upon the wooden rail. The next improvement was an attempt to increase the durability of the wagons by making the wheels of iron. It was not, however, until 1767, when the first rails were cast entirely of iron with a flange at one side to keep the wheel steadily in place, that the modern roadbed in all its fundamental principles made its appearance. This, be it observed, was only two years after Watt had patented his first steam engine, and it was nearly fifty years before Stephenson built his first locomotive. The railroad originally was as completely dissociated from steam propulsion as was the ship. Just as vessels had

existed for ages before the introduction of mechanical power, so the railroad had been a familiar sight in the mining districts of England for at least two centuries before the invention of Watt really gave it wings and turned it to wider uses. In this respect the progress of the railroad resembles that of the automobile, which had existed in crude form long before the invention of the gasoline engine made it practically useful.

In the United States three new methods of transportation made their appearance at almost the same time — the steamboat, the canal boat, and the rail car. Of all three, the last was the slowest in attaining popularity. As early as 1812 John Stevens, of Hoboken, aroused much interest and more amused hostility by advocating the building of a railroad, instead of a canal, across New York State from the Hudson River to Lake Erie, and for several years this indefatigable spirit journeyed from town to town and from State to State, in a fruitless effort to push his favorite scheme. The great success of the Erie Canal was finally hailed as a conclusive argument against all the ridiculous claims made in favor of the railroad and precipitated a canal mania which spread all over the country.

Yet the enthusiasts for railroads could not be discouraged, and presently the whole population divided into two camps, the friends of the canal, and the friends of the iron highway. Newspapers acrimoniously championed either side; the question was a favorite topic with debating societies; public meetings and conventions were held to uphold one method of transportation and to decry the other. The canal, it was urged, was not an experiment; it had been tested and not found wanting; already the great achievement of De Witt Clinton in completing the Erie Canal had made New York City the metropolis of the western world. The railroad, it was asserted, was just as emphatically an experiment; no one could tell whether it could ever succeed; why, therefore, pour money and effort into this new form of transportation when the other was a demonstrated success?

It was a simple matter to find fault with the railroad; it has always been its fate to arouse the opposition of the farmers. This hostility appeared early and was based largely upon grounds that have a familiar sound even today. The railroad, they said, was a natural monopoly; no private citizen could hope ever to own one; it was thus a kind of monster which, if encouraged, would override

all popular rights. From this economic criticism the enemies of the railroad passed to details of construction: the rails would be washed out by rains; they could be destroyed by mischievous people; they would snap under the cold of winter or be buried under the snow for a considerable period, thus stopping all communication. The champions of artificial waterways would point in contrast to the beautiful packet boats on the Erie Canal, with their fine sleeping rooms, their restaurants, their spacious decks on which the fine ladies and gentlemen congregated every warm summer day, and would insist that such kind of travel was far more comfortable than it could ever be on railroads. To all these pleas the advocates of the railroad had one unassailable argument — its infinitely greater speed. After all, it took a towboat three or four days to go from Albany to Buffalo, and the time was not far distant, they argued, when a railroad would make the same trip in less than a day. Indeed, our forefathers made one curious mistake: they predicted a speed for the railroad — a hundred miles an hour — which it has never attained consistently with safety.

If the American of today could transport himself to one of the first railroad lines built in the United

States it is not unlikely that he would side with the canal enthusiast in his argument. The rough pictures which accompany most accounts of early railroad days, showing a train of omnibus-like carriages pulled by a locomotive with upright boiler, really represent a somewhat advanced stage of development. Though Stephenson had demonstrated the practicability of the locomotive in 1814 and although the American, John Stevens, had constructed one in 1826 which had demonstrated its ability to take a curve, local prejudice against this innovation continued strong. The farmers asserted that the sparks set fire to their hayricks and barns and that the noise frightened their hens so that they would not lay and their cows so that they could not give milk. On the earliest railroads, therefore, almost any other method of propulsion was preferred. Horses and dogs were used, winches turned by men were occasionally installed, and in some cases cars were even fitted with sails. Of all these methods, the horse was the most popular: he sent out no sparks, he carried his own fuel, he made little noise, and he would not explode. His only failing was that he would leave the track; and to remedy this defect the early railroad builders hit upon a happy device. Sometimes they would fix a

treadmill inside the car; two horses would patiently propel the caravan, the seats for passengers being arranged on either side. So unformed was the prevalent conception of the ultimate function of the railroad, and so pronounced was the fear of monopoly that, on certain lines, the roadbed was laid as a state enterprise and the users furnished their own cars, just as the individual owners of towboats did on the canals. The drivers, however, were an exceedingly rough lot; no schedules were observed and as the first lines had only single tracks and infrequent turnouts, when the opposing sides would meet each other coming and going, precedence was usually awarded to the side which had the stronger arm. The roadbed showed little improvement over the mine tramways of the eighteenth century, and the rails were only long wooden stringers with strap iron nailed on top. So undeveloped were the resources of the country that the builders of the Baltimore and Ohio Railroad in 1828 petitioned Congress to remit the duty on the iron which it was compelled to import from England. The trains consisted of a string of little cars, with the baggage piled on the roof, and when they reached a hill they sometimes had to be pulled up the inclined plane by a rope. Yet the traveling in these earliest days

was probably more comfortable than in those which immediately followed the general adoption of locomotives. When, five or ten years later, the advantages of mechanical as opposed to animal traction caused engines to be introduced extensively, the passengers behind them rode through constant smoke and hot cinders that made railway travel an incessant torture.

Yet the railroad speedily demonstrated its practical value; many of the first lines were extremely profitable, and the hostility with which they had been first received soon changed to an enthusiasm which was just as unreasoning. The speculative craze which invariably follows a new discovery swept over the country in the thirties and the forties and manifested itself most unfortunately in the new Western States — Ohio, Indiana, Illinois, and Michigan. Here bonfires and public meetings whipped up the zeal; people believed that railroads would not only immediately open the wilderness and pay the interest on the bonds issued to construct them, but that they would become a source of revenue to sadly depleted state treasuries. Much has been heard of government ownership in recent years; yet it is nothing particularly new, for many of the early railroads in these new Western States

were built as government enterprises, with results which were frequently disastrous. This mania, with the land speculation accompanying it, was largely responsible for the panic of 1837 and led to that repudiation of debts in certain States which for so many years gave American investments an evil reputation abroad.

In the more settled parts of the country, however, railroad building had comparatively a more solid foundation. Yet the railroad map of the forties indicates that railroad building in this early period was incoherent and haphazard. Practically everywhere the railroad was an individual enterprise; the builders had no further conception of it than as a line connecting two given points usually a short distance apart. The roads of those days began anywhere and ended almost anywhere. A few miles of iron rail connected Albany and Schenectady. There was a road from Hartford to New Haven, but there was none from New Haven to New York. A line connected Philadelphia with Columbia; Baltimore had a road to Washington; Charleston, South Carolina, had a similar contact with Hamburg in the same State. By 1842, New York State, from Albany to Buffalo, possessed several disconnected stretches of railroad. It was

not until 1836, when work was begun on the Erie Railroad, that a plan was adopted for a single line reaching several hundred miles from an obvious point, such as New York, to an obvious destination, such as Lake Erie. Even then a few far-sighted men could foresee the day when the railroad train would cross the plains and the Rockies and link the Atlantic and the Pacific. Yet, in 1850 nearly all the railroads in the United States lay east of the Mississippi River, and all of them, even when they were physically mere extensions of one another, were separately owned and separately managed.

Successful as many of the railroads were, they had hardly yet established themselves as the one preëminent means of transportation. The canal had lost in the struggle for supremacy, but certain of these constructed waterways, particularly the Erie, were flourishing with little diminished vigor. The river steamboat had enjoyed a development in the first few decades of the nineteenth century almost as great as that of the railroad itself. The Mississippi River was the great natural highway for the products and the passenger traffic of the South Central States; it had made New Orleans one of the largest and most flourishing cities in the

country; and certainly the rich cotton planter of the fifties would have smiled at any suggestion that the "floating palaces" which plied this mighty stream would ever surrender their preëminence to the rusty and struggling railroads which wound along its banks.

This period, which may be taken as the first in American railroad development, ended about the middle of the century. It was an age of great progress but not of absolutely assured success. A few lines earned handsome profits, but in the main the railroad business was not favorably regarded and railroad investments everywhere were held in suspicion. The condition that prevailed in many railroads is illustrated by the fact that the directors of the Michigan and Southern, when they held their annual meeting in 1853, had to borrow chairs from an adjoining office as the sheriff had walked away with their own for debt. Even a railroad with such a territory as the Hudson River Valley, and extending from New York to Albany existed in a state of chronic dilapidation; and the New York and Harlem, which had an entrance into New York City as an asset of incalculable value, was looked upon merely as a vehicle for Wall Street speculation.

Meanwhile the increasing traffic in farm products, mules, and cattle from the Northwest to the plantations of the South created a demand for more ample transportation facilities. In the decade before the Civil War various north and south lines of railway were projected and some of these were assisted by grants of land from the Federal Government. The first of these, the Illinois Central, received a huge land-grant in 1850 and ultimately reached the Gulf at Mobile by connecting with the Mobile and Ohio Railroad which had also been assisted by Federal grants. But the panic of 1857, followed by the Civil War, halted all railroad enterprises. In the year 1856 some 3600 miles of railroad had been constructed; in 1865 only 700 were laid down. The Southern railroads were prostrated by the war and north and south lines lost all but local traffic.

After the war a brisk recovery began and brought to the fore the first of the great railroad magnates and the shrewdest business genius of the day, Cornelius Vanderbilt. Though he had spent his early life and had laid the basis of his fortune in steamboats, he was the first man to appreciate the fact that these two methods of transportation were about to change places — that water transportation

was to decline and that rail transportation was to gain the ascendancy. It was about 1865 that Vanderbilt acted on this farsighted conviction, promptly sold out his steamboats for what they would bring, and began buying railroads despite the fact that his friends warned him that, in his old age, he was wrecking the fruits of a hard and thrifty life. But Vanderbilt perceived what most American business men of the time failed to see, that a change had come over the railroad situation as a result of the Civil War.

The time extending from 1860 to about 1875 marks the second stage in the railroad activity of the United States. The characteristic of this period is the development of the great trunk lines and the construction of a transcontinental route to the Pacific. The Civil War ended the supremacy of the Mississippi River as the great transportation route of the West. The fact that this river ran through hostile territory — Vicksburg did not fall until July 4, 1863 — forced the farmers of the West to find another outlet for their products. By this time the country from Chicago and St. Louis eastward to the Atlantic ports was fairly completely connected by railroads. The necessities of war led to great improvements in construction and equip-

ment. Business which had hitherto gone South now began to go East; New Orleans ceased to be the great industrial entrepôt of this region and gave place to St. Louis and Chicago.

Yet, though this great change in traffic routes took place in the course of the war, the actual consolidations of the various small railroads into great trunk lines did not begin until after peace had been assured. The establishment of five great railroads extending continuously from the Atlantic seaboard to Chicago and the West was perhaps the most remarkable economic development of the ten or fifteen years succeeding the war. By 1875 these five great trunk lines, the New York Central, the Pennsylvania, the Erie, the Baltimore and Ohio, and the Grand Trunk, had connected their scattered units and established complete through systems.

All the vexations that had necessarily accompanied railroad traffic in the days when each one of these systems had been a series of disconnected roads had disappeared. The grain and meat products of the West, accumulating for the most part at Chicago and St. Louis, now came rapidly and uninterruptedly to the Atlantic seaboard, and railroad passengers, no longer submitted to the inconveniences of the Civil War period, now began

to experience for the first time the pleasures of railroad travel. Together with the articulation of the routes, important mechanical changes and reconstruction programmes completely transformed the American railroad system. The former haphazard character of each road is evidenced by the fact that in Civil War days there were eight different gages, with the result that it was almost impossible for the rolling stock of one line to use another. A few years after the Civil War, however, the present standard gage of four feet eight and one-half inches had become uniform all over the United States. The malodorous "eating cribs" of the fifties and the sixties — little station restaurants located at selected spots along the line — now began to disappear, and the modern dining car made its appearance. The old rough and ready sleeping cars began to give place to the modern Pullman. One of the greatest drawbacks to ante-bellum travel had been the absence of bridges across great rivers, such as the Hudson and the Susquehanna. At Albany, for example, the passengers in the summer time were ferried across, and in winter they were driven in sleighs or were sometimes obliged to walk across the ice. It was not until after the Civil War that a great iron bridge, two thousand feet long, was

constructed across the Hudson at this point. On the trains the little flickering oil lamps now gave place to gas, and the wood burning stoves — frequently in those primitive days smeared with tobacco juice — in a few years were displaced by the new method of heating by steam.

The accidents which had been almost the prevailing rule in the fifties and sixties were greatly reduced by the Westinghouse air-brake, invented in 1868, and the block signaling system, introduced somewhat later. In the ten years succeeding the Civil War, the physical appearance of the railroads entirely changed; new and larger locomotives were made, the freight cars, which during the period of the Civil War had a capacity of about eight tons, were now built to carry fifteen or twenty. The former little flimsy iron rails were taken up and were relaid with steel. In the early seventies when Cornelius Vanderbilt substituted steel for iron on the New York Central, he had to import the new material from England. In the Civil War period, practically all American railroads were single track lines — and this alone prevented any extensive traffic. Vanderbilt laid two tracks along the Hudson River from New York to Albany, and four from Albany to Buffalo, two exclusively for freight

and two for passengers. By 1880 the American railroad, in all its essential details, had definitely arrived.

But in this same period even more sensational developments had taken place. Soon after 1865 the imagination of the American railroad builder began to reach far beyond the old horizon. Up to that time the Mississippi River had marked the Western railroad terminus. Now and then a road straggled beyond this barrier for a few miles into eastern Iowa and Missouri; but in the main the enormous territory reaching from the Mississippi to the Pacific Ocean was crossed only by the old trails. The one thing which perhaps did most to place the transcontinental road on a practical basis was the annexation of California in 1848; and the wild rush that took place on the discovery of the gold fields one year later had led Americans to realize that on the Pacific coast they had an empire which was great and incalculably rich but almost inaccessible. The loyalty of California to the Northern cause in the war naturally stimulated a desire for closer contact. In the ten years preceding 1860 the importance of a transcontinental line had constantly been brought to the attention of Congress and the project had caused much jealousy between

the North and the South, for each region desired to control its Eastern terminus. This impediment no longer stood in the way; early in his term, therefore, President Lincoln signed the bill authorizing the construction of the Union Pacific — a name doubly significant, as marking the union of the East and the West and also recognizing the sentiment of loyalty or union that this great enterprise was intended to promote. The building of this railroad, as well as that of the others which ultimately made the Pacific and the Atlantic coast near neighbors — the Santa Fé, the Southern Pacific, the Northern Pacific, and the Great Northern — is described in the pages that follow. Here it is sufficient to emphasize the fact that they achieved the concluding triumph in what is certainly the most extensive system of railroads in the world. These transcontinental roads really completed the work of Columbus. He sailed to discover the western route to Cathay and found that his path was blocked by a mighty continent. But the first train that crossed the plains and ascended the Rockies and reached the Golden Gate assured thenceforth a rapid and uninterrupted transit westward from Europe to Asia.

CHAPTER II

THE COMMODORE AND THE NEW YORK CENTRAL

A STORY was told many years ago of Commodore Vanderbilt which, while perhaps not strictly true, was pointed enough to warrant its constant repetition for more than two generations. Back in the sixties, when this grizzled railroad chieftain was the chief factor in the rapidly growing New York Central Railroad system, whose backbone then consisted of a continuous one-track line connecting Albany with the Great Lakes, the president of a small cross-country road approached him one day and requested an exchange of annual passes.

"Why, my dear sir," exclaimed the Commodore, "my railroad is more than three hundred miles long, while yours is only seventeen miles."

"That may all be so," replied the other, "but my railroad is just as wide as yours."

This statement was true. Practically no railroad, even as late as the sixties, was wider than

another. They were all single-tracked lines. Even the New York Central system in 1866 was practically a single-track road; and the Commodore could not claim to any particular superiority over his neighbors and rivals in this particular. Instead of sneering at his "seventeen-mile" colleague, Vanderbilt might have remembered that his own fine system had grown up in less than two generations from a modest narrow-gage track running from "nothing to nowhere." The Vanderbilt lines, which today with their controlled and affiliated systems comprise more than 13,000 miles of railroad — a large portion of which is double-tracked, no mean amount being laid with third and fourth tracks — is the outgrowth of a little seventeen-mile line, first chartered in 1826, and finished for traffic in 1831. This little railroad was known as the Mohawk and Hudson, and it extended from Albany to Schenectady. It was the second continuous section of railroad line operated by steam in the United States, and on it the third locomotive built in America, the *De Witt Clinton*, made a satisfactory trial trip in August, 1831.

The success of this experiment created a sensation far and wide and led to rapid railroad building in other parts of the country in the years

immediately following. The experiences of a participant in this trial trip are described about forty years later in a letter written by Judge J. L. Gillis of Philadelphia:

In the early part of the month of August of that year [1831], I left Philadelphia for Canandaigua, New York, traveling by stages and steamboats to Albany and stopping at the latter place. I learned that a locomotive had arrived there and that it would make its first trip over the road to Schenectady the next day. I concluded to lie over and gratify my curiosity with a first ride after a locomotive.

That locomotive, the train of cars, together with the incidents of the day, made a very vivid impression on my mind. I can now look back from one of Pullman's Palace cars, over a period of forty years, and see that train together with all the improvements that have been made in railroad travel since that time. . . . I am not machinist enough to give a description of the locomotive that drew us over the road that day, but I recollect distinctly the general make-up of the train. The train was composed of coach bodies, mostly from Thorpe and Sprague's stage coaches, placed upon trucks. The trucks were coupled together with chains, leaving from two to three feet slack, and when the locomotive started it took up the slack by jerks, with sufficient force to jerk the passengers who sat on seats across the tops of the coaches, out from under their hats, and in stopping, came together with such force as to send them flying from the seats.

They used dry pitch for fuel, and there being no smoke or spark catcher to the chimney or smoke-stack, a volume of black smoke, strongly impregnated with sparks, coals, and cinders, came pouring back the whole length of the train. Each of the tossed passengers who had an umbrella raised it as a protection against the smoke and fire. They were found to be but a momentary protection, for I think in the first mile the last umbrella went overboard, all having their covers burnt off from the frames, when a general *mêlée* took place among the deck passengers, each whipping his neighbor to put out the fire. They presented a very motley appearance on arriving at the first station. Then rails were secured and lashed between the trucks, taking the slack out of the coupling chains, thereby affording us a more steady run to the top of the inclined plane at Schenectady.

The incidents off the train were quite as striking as those on the train. A general notice of the contemplated trip had excited not only the curiosity of those living along the line of the road, but those living remote from it, causing a large collection of people at all the intersecting roads along the route. Everybody, together with his wife and all his children, came from a distance with all kinds of conveyances, being as ignorant of what was coming as their horses, and drove up to the road as near as they could get, only looking for the best position to get a view of the train. As it approached the horses took fright and wheeled, upsetting buggies, carriages, and wagons, and leaving for parts unknown to the passengers if not to their owners, and it is not now positively known if some of them have stopped yet.

Such is a hasty sketch of my recollection of my first ride after a locomotive.

The Mohawk and Hudson Railroad was originally constructed with inclined planes worked by stationary engines near each terminus, the inclinations being one foot in eighteen. The rail used was a flat bar laid upon longitudinal sills. This type of rail came into general use at this period and continued in use in parts of the country even as late as the Civil War.

The roads that now make up the New York Central were built piecemeal from 1831 to 1853; and the organization of this company in the latter year, to consolidate eleven independent roads extending from Albany to Buffalo, finally put an end to the long debate between canals and railroads. The founding of this company definitely meant that transportation in the United States henceforth would follow the steel route and not the water ditch and the towpath. Canals might indeed linger for a time as feeders, even, as in the case of the Erie and a few others, as more or less important transportation routes, but every one now realized that the railroad was to be the great agency which would give plausibility to the industrial organization of the United States and develop its great territory.

Besides the pioneer Mohawk and Hudson, this consolidation included the Utica and Schenectady, which had been opened in 1836 and which had operated profitably for many years, always paying large dividends. The Tonawanda Railroad, opened in 1837, and the Buffalo and Niagara Falls, also finished in the same year, were operated with profit until they were absorbed by the new system. In 1838 the Auburn and Syracuse and the Hudson and Berkshire Railroads were opened. The former after being merged in 1850 with the Rochester and Syracuse Railway, became a part of the consolidation. The Syracuse and Attica Railroad, opened in 1839, the Attica and Buffalo, opened in 1842, the Schenectady and Troy, opened in the same year, and several other small lines, some of which had undergone various changes in name and ownership, were all merged into the New York Central Railroad. This great property now comprised five hundred and sixty miles of railroad, the main stem extending from Albany to Buffalo. Though it had as yet no connection with the Hudson River Railroad, the New York Central Railroad at this period was the most substantial and important of American railroad systems. It developed a large and healthy through traffic to the Great Lakes and

was practically free from railroad competition. The Erie Railway, which for many years had been struggling under great difficulties to reach the Great Lakes and had gone through nearly a generation of financial vicissitudes, was just getting its through line actively under way. The Pennsylvania Railroad was just pushing through to the waters of the Ohio and was not likely for many years to compete with the New York Central for the lake traffic. The Baltimore and Ohio, while remotely a competitor, was, like the Pennsylvania, looking more for the traffic of the Ohio Valley than for that of the Lakes.

The period of six years following the consolidation of 1853 was one of great prosperity for the New York Central system, and, notwithstanding the setbacks to business caused by the panic of 1857, large dividends were continuously paid on the capital stock. In the year 1859 — before the Vanderbilt régime opened — the management embraced what to modern men of affairs are famous names. Erastus Corning was president, Dean Richmond was vice-president, and John V. L. Pruyn, Nathaniel Thayer, Isaac Townsend, and Chauncey Vibbard were directors. The headquarters of the company were at Albany, and the stock was owned mainly by residents of that city.

Meanwhile the building of railroads in other parts of the State and under other leadership was going forward rapidly. As far back as 1832 the first mile of the New York and Harlem Railroad was opened for traffic. This single mile remained for some time the only property of the company. It extended through what is now a thriving part of down-town New York. Its original terminus was at Prince Street, but the line was afterwards extended southward to the City Hall and later to the Astor House. It was not until 1837 that the road reached northward to Harlem and not until 1842 that Williamsbridge became the northern terminus. The line was looked upon as a worthless piece of property until 1852, when it was extended north to Chatham, to connect with the Albany and Stockbridge Railroad, and thus give a through line from New York City to Albany.

Another property built in these days and destined to become eventually an important part of the Vanderbilt lines was the Hudson River Railroad. This company was chartered in 1846, but for many years was frowned on as an unsound business venture, because of the belief that it would be in direct competition with the river traffic and therefore could never be made to pay.

Nevertheless the promoters went ahead and by 1850 the road had been opened to Poughkeepsie. The entire line of one hundred and forty-four miles was completed to East Albany in 1851. At the same time the Troy and Greenbush Railroad, extending six miles to Troy, was leased, thus giving the new Hudson River Railroad an entry into the city of Troy. The Hudson River Railroad was entirely independent of the New York Central enterprise and was controlled in those early days by a group of New Yorkers, prominent among whom was Samuel Sloan.

As we enter the Civil War period, we find the three important properties which were afterwards to make up the Vanderbilt system all developing rapidly and logically into the strategical relationship which would make ultimate consolidation inevitable. The completion of the Erie Railway and its gradual development as the only through line across the State from New York to the Great Lakes; the opening, expansion, and general solidification of the Pennsylvania lines and their aggressive policy of reaching out to the lake region on the west and across New Jersey on the east; the extension of the Erie interests into the New England field, and the possibility that the latter might gain

control of the Harlem or the Hudson River Railroad — all these considerations naturally aroused in the New York Central interests a desire to insure the future by obtaining for themselves control of the lines that would connect their own system with New York City and the Eastern seaboard.

During the Civil War, however, no progress was made in this direction. It was not until 1869, four years after the closing of the war, that any radical change took place. But in the years that had intervened, a new and commanding figure in the railroad world had come upon the scene. This man had grown to be the dominating genius, not only in the field of railway expansion, but in the world of finance as well. His name was Cornelius Vanderbilt. Born in 1794 in very humble circumstances, he had received little or no education, and as a youth had eked out a living by ferrying passengers and garden produce from Staten Island to New York. He had painfully saved a few hundred dollars within a year or two after his marriage, and with this capital he began his career in the transportation business. From his first ferrying project he engaged in other undertakings and laid the foundation of his subsequent fortune in steamboat navigation. About 1860, at an age when most

men are beginning to retire from active affairs, the "Commodore" — as he was called on account of his numerous fleet — entered actively into the field of railway development, management, and consolidation. The extraordinary character and genius of the man are well depicted by the events of the years that followed.

Before the opening of the Civil War and until immediately after its end, the New York Central and the Erie systems were controlled by bitterly antagonistic interests. These interests were beginning to foresee the day when extremely aggressive competition would call into play their greatest energies. Vanderbilt, wiser than his generation, foresaw more than this. His vision took in the vast future values of the properties as developed trunk lines, and the greater possibilities of their control and operation as a consolidated whole. He was in a very real sense the forerunner or pioneer of the great consolidation period of a half century later. He was the Harriman and the Hill of his day.

The Erie had its own approach to New York City, but the New York Central was connected with the metropolis only by the river and the two independent roads — the Harlem Railroad

and the Hudson River Railroad. To get the latter two roads under his complete control was Vanderbilt's first object. He would then have unimpeded access to New York and so become independent of the river.

He began his ambitious plans by making himself the master of the Harlem property, and in so doing got his first experience in railroad stock manipulation and at the same time picked up a moderate fortune. It was comparatively easy to buy the control of the Harlem Railroad. The Company had never paid a dividend, and, in 1863, when the Commodore quietly began his work, the stock was selling below thirty dollars a share. Before the close of this year he had manipulated the stock until it had reached ninety-two, and by a corner, in August of that year, he raised it to 179. On this deal Vanderbilt reaped a nice little fortune — but evidently not enough to enable him to carry through the ambitious plans which were in the back of his head, for in 1864 we find him manipulating another corner and this time running the price of the stock up to 285. In this wise the Commodore not only added millions to his already growing fortune but also made himself a power in the financial world. Financiers began to fear him.

and he found it comparatively easy later to buy up the control of the Hudson River Railroad, which he did by paying about 100 for the stock. Then he began speculating again, sent Hudson River up to 180, and incidentally reaped another fortune for himself.

By this time Vanderbilt had achieved a great reputation as a man who created values, earned dividends, and invented wealth as if by magic; other railroad managers now began to lay their properties at his feet and ask him to do with them what he had done with the Harlem and the Hudson River. For under the Commodore's magic touch the Harlem Railroad for the first time in its long history began to pay dividends at a high rate, and in four years the earnings of the Hudson River property had nearly doubled.

One of the first properties to be placed at Vanderbilt's feet was the New York Central, and the control passed into his hands in the winter of 1866–67. He was now in a powerful position and immediately began to lay his plans for obtaining control of the Erie Railroad in the following year. In the latter effort he did not succeed, however, and after a protracted and dramatic contest he was defeated by his great adversary, "Uncle"

Daniel Drew. The story of this contest need not be detailed here, as it is given in full in the chapter on the Erie Railroad.

In the fall of 1869 the Commodore, having secured everything in the railroad field he had sought except the Erie, put through his scheme for consolidation. The New York Central and Hudson River Railroad was incorporated. It included the old New York Central and also the Hudson River Railroad but not the Harlem. The capital of the consolidated company was placed at ninety million dollars, a figure of such magnitude in those days that the world was startled. The system embraced in all nearly 850 miles of railroad lines. A few years later the Harlem Railroad was leased to the property at a high valuation and a large dividend was guaranteed on the stock, the ownership of which was retained by the Vanderbilt family.

The Vanderbilt system as it is now understood really began with these transactions. From this time on, its history has been similar in many respects to that of other large systems which were the outgrowth of merger or manipulation in these early days. During the remarkable period of commercial and industrial development in this country from 1870 onward, when thousands of miles of

new lines were built every year, when the growth of population was beginning to make the States of Ohio, Indiana, and Illinois centers of wealth and production, and when the wonderful Northwestern country embracing the States of Michigan, Wisconsin, and Minnesota, was so rapidly opened up and brought nearer to the Eastern markets, the Vanderbilt railroad interests were not idle. The original genius, Cornelius Vanderbilt, was soon gathered to his fathers, but his son, William H. Vanderbilt, was in many ways a worthy successor.

By 1885 the Vanderbilt lines had grown in extent and importance far beyond any point of which the elder Vanderbilt had ever dreamed. Long before this year the system included many smaller lines within the State of New York, and it had also acquired close control of the great Lake Shore and Michigan Southern system, with its splendid line from Buffalo to Chicago, consisting of more than 500 miles of railroad; the Michigan Central, owning lines from Detroit to Chicago, with many branches in Michigan and Illinois; the Canada Southern Railway, extending from Detroit to Toronto; and in addition to all these about 800 miles of other lines in the States of Ohio, Indiana, Michigan, and Pennsylvania.

In this same year 1885, another event of importance took place. The New York, West Shore and Buffalo Railroad, which after strenuous efforts extending over many years had constructed a new trunk line from Weehawken along the west shore of the Hudson to Albany and thence to Buffalo, came under the control of the New York Central. The great system in the Middle West, now known as the "Big Four," or Cleveland, Cincinnati, Chicago and St. Louis — embracing 750 miles of lines westward from Cleveland and Columbus, Ohio, to Indianapolis, Springfield, and Cincinnati, and having traffic connections with St. Louis — was also a Vanderbilt property at this time, although not under the formal control of these interests. Another important competing line secured in this period was the New York, Chicago and St. Louis, built to parallel the Lake Shore and known as the "Nickel Plate" route. This road extended from Buffalo to Chicago, and, like the West Shore, had been constructed with the hope of ultimately selling out to its competitor.

The development of railroad properties under the Vanderbilt influence was not confined to the territory east of Chicago and the Mississippi Valley. As early as 1859 a large system of roads had

been merged in the section extending westward from Chicago to Omaha and radiating throughout Iowa, Minnesota, Kansas, Wisconsin, Missouri, and other States. This company was known as the Chicago and North Western Railroad, and its property, which was one of large and growing value, by 1886 embraced a system of over 3500 miles of road. Although neither controlled by the New York Central nor directly affiliated therewith, it was classed as a Vanderbilt property.

While for many years after the death of the Commodore the Vanderbilt family remained in direct financial and operating control of the New York Central and its myriad of subsidiary lines and their genius as railroad builders and operators was distinctly evident, yet the brains and resources of the Vanderbilts were not alone responsible for the brilliant career of the system down to recent times. William H. Vanderbilt, though a man of unusual ability, did not possess the breadth of view or the sagacity of his father, and in the course of a few years he found himself exposed to a cyclone of public criticism. He had let it be widely known that he was personally the owner of over eighty-seven per cent of the hundred million capital of the company. In 1879 the New York Legislature,

backed by the force of the popular anger and surprise at the accumulation of a hundred million dollar fortune by one man in ten years, was investigating the management of the New York Central with a view to curtailing its power; the rate wars were on between the seaboard and Chicago; and Jay Gould was threatening to divert all the traffic of his Wabash, St. Louis, and Pacific lines from the New York Central and turn it over to other Eastern connections unless Vanderbilt would give him a vital interest in the Vanderbilt lines.

Vanderbilt was harassed beyond endurance and, being of softer material than his father, was fearful of the outcome of public opinion, notwithstanding the fact that in a moment of anger — according to the statement of a newspaper reporter whose veracity Vanderbilt denied to his dying day — he had used the familiar expression, "The public be damned!" There were intimations that the Legislature was planning to impose heavy taxes on the property, solely because Vanderbilt held this gigantic personal ownership in the property. This prospect frightened him and he consulted friends whose judgment he respected. They urged him to sell a considerable part of his holdings in order to

distribute the ownership of the property among a large number of people.

This plan could not be carried out, however, in the ordinary way, because large sales of stock by the Vanderbilt interests, if the speculating and investing public learned that he was making them, would greatly depreciate the price and might create general demoralization and a panic, while they would certainly injure the credit of the New York Central property. But a way out of the dilemma had to be found. It was at this juncture that a new personality, later to be closely identified with the Vanderbilt lines for a long series of years, appeared upon the scene. Vanderbilt was advised to consult J. Pierpont Morgan, of the banking house of Drexel, Morgan and Co. At that time the name of J. P. Morgan was just beginning to come prominently to the front in banking circles in New York. The Drexels had been conspicuous in business in Philadelphia for many years and in a sense were the fiscal agents of the great Pennsylvania Railroad Company. But the spectacular success of the House of Morgan a few years before in marketing the French government loan in England had added largely to its prestige. And so Vanderbilt concluded that, if any man could show

him a way out in his difficult problem, Pierpont Morgan was that man.

The upshot of the matter was that Morgan devised a plan for the sale of a large amount of Vanderbilt's stock holdings through private sale in England, and in such a way that the knowledge of such sale would not become public in America. A confidential syndicate was formed which undertook to take the stock in a block and pass it on to English investors at approximately its current market price of about $130 per share. The sale was promptly accomplished; the stock went into the hands of unknown interests abroad; Vanderbilt received more than $25,000,000 in cash, which he largely reinvested in United States government bonds, and the Morgan syndicate reaped a profit of about $3,000,000. Five months after the closing of the syndicate public announcement was made of the sale and of the syndicate profit. The striking success of this transaction naturally added greatly to the prestige of J. P. Morgan as a financier of very large caliber, and it had the satisfactory effect of curtailing the legislative attacks on Vanderbilt.

From that date forward, the history of the Vanderbilt railroads has been closely identified with

the House of Morgan. J. P. Morgan and his business associates became the company's financial agents, and thereafter all plans of expansion or consolidation were handled directly by them. In the board of directors Morgan banking interests had full representation, which they have held until this day.

The subsequent history of the Vanderbilt lines is chiefly a story of business expansion and growth. From 1885 to 1893, the great panic year, the New York Central each year added to its mileage, either by merger of smaller lines or by construction. All this time it was consolidating the system, eliminating the weaker links, and strengthening the stronger. Its lines penetrated all the best Eastern railroad territory outside of New England, New Jersey, and Pennsylvania, and no other railroad system in the country, with the single exception of the Pennsylvania, covered anything like the same amount of rich and settled territory, or reached so many cities and towns of importance. New York, Buffalo, Cleveland, Detroit, Chicago, St. Louis, Cincinnati, Indianapolis — these are a few of the great traffic centers which were included in the Vanderbilt preserves. The population of all these cities, as well as that of the hundreds of smaller

places and the countryside in general, was growing by leaps and bounds. Furthermore the Northwest, beyond the Great Lakes and through to the Pacific coast, saw the beginnings of its great development at this time; and the wheat fields of the far western country became a factor of profound importance in the national development. Consequently when the period of depression arrived with the panic of 1893, the Vanderbilt properties were, as a whole, in a strong position to meet the changed situation and, like the great Pennsylvania property, they all passed through to the advent of the new industrial era without the defaulting of a bond or the passing of a dividend. The remarkable character of this achievement is evident in view of the fact that in the period from 1893 to 1898 more than sixty-five per cent of all the railroad mileage in the United States went into the hands of receivers.

After the close of this era of panic, the Vanderbilt lines began expanding again, though on a much smaller scale than in their more active time. In 1898 William K. Vanderbilt, then president, made the announcement that the New York Central had leased the Boston and Albany Railroad, at that time a lucrative line running from Albany across Massachusetts into Boston. This gave the

system an entry into the New England field, which it has continuously held since. A few years later this New England interest was increased by the acquisition of the Rutland Railroad in Vermont, thus making connection with the Ogdensburg and Lake Champlain, a line running across the northern part of New York State, which had also come under Vanderbilt control.

When business revived in the closing years of the nineteenth century, the history of American railroads began a new chapter. Federal railroad regulation, which started in a moderate way with the passage of the Interstate Commerce Act in 1887, had steadily increased through the years; the Sherman Anti-trust Act, passed in 1890, had been interpreted broadly as affecting the railroads of the country as well as the industrial and other combinations. These influences had thus greatly curtailed the consolidation of competing lines which had gone on so rapidly during the decades following the Civil War. Railroad managers and financiers therefore began to face a very serious problem. Competition of a more or less serious nature was still rampant, rates were cut, and traffic was pretty freely diverted by dubious means. Consequently many large railroad systems of heavy capitalization

bid fair to run into difficulties on the first serious falling off in general business.

Great men are usually the products of their times and one of the men developed by these times takes rank with the greatest railroad leaders in history. Edward H. Harriman had risen in ten years from comparative obscurity and was now the president of the Union Pacific Railroad, which he had, in conjunction with the banking house of Kuhn, Loeb and Company, reorganized and taken out of bankruptcy. Harriman was one of the originators of the "community of interest" idea, a device for the partial control of one railroad system by another. For instance, although the law forbade any railroad system from acquiring a complete control of a competing line by purchasing a majority of its capital stock or by leasing it, nothing was said about one railroad having a minority investment interest in another. A minority investment, even though it be as low as ten or twenty per cent, usually constitutes a dominating influence if held by a single interest, for in most cases the majority of the shares will be owned in small blocks by thousands of investors who never combine for a definite, practical purpose. Thus the interest which has the one large block of stock usually controls

the voting power, and runs little risk of losing it unless a contest develops with other powerful interests — and this is a contingency which it almost never has to meet.

Carrying out this policy of promoting harmony among competing lines, the New York Central and Pennsylvania Railroad early in 1900 acquired a working control of the Reading Company, which in turn controlled the New Jersey Central and dominated the anthracite coal traffic. Later the Baltimore and Ohio shared this Reading interest with the Lake Shore of the New York Central system. The New York Central and the Pennsylvania acquired a working control of the same kind in the Chesapeake and Ohio Railway, which was an important element in the soft coal fields and was reaching out to grasp soft coal properties in Ohio and Indiana.

These and other purchases, and the consequent voice acquired in the management, established comparative harmony among Eastern railroads for a long time; they stabilized rates and enabled formerly competing roads to parcel out territory equitably among the different interests. Later, Harriman, and to some extent Morgan, carried the community of interest idea some steps further.

Morgan caused the New York Central to acquire stock interests in certain "feeder" lines such as the New York, New Haven and Hartford and the Chicago, Milwaukee and St. Paul, as well as in competing lines; and Harriman caused the Union Pacific not only to dominate the Southern Pacific Company by minority control but also to acquire interests in the Illinois Central, the Baltimore and Ohio, the New York Central, and other eastern properties. The fact was that Harriman had plans in view for acquiring actual control of the New York Central for the Union Pacific and thus, with the Illinois Central, of creating a continuous transcontinental line from ocean to ocean.

In the past decade few unusual or startling events have marked the history of the Vanderbilt lines. The Vanderbilt family no longer possesses a majority interest in the stock, or anything which approaches it, and the New York Central system and its subsidiaries have come to be known more and more as Morgan properties. The system has grown up with the country. Many of its former controlled roads have now been merged into the main corporation and many new lines have been added to it. Hundreds of millions of dollars of new capital have been spent on the main lines and

terminals since 1900. In 1919 the entire property, including controlled lines, embraced more than 13,000 miles of main track, besides about 5000 miles of extra tracks; over 200,000 freight cars are in use on the system, and every year upwards of 200,000,000 tons of freight are transported. The gross annual revenues of the entire system now aggregate more than $400,000,000, while the total capitalization in stocks and bonds exceeds a billion dollars. It is indeed a far cry from that day in August, 1831, when the *De Witt Clinton* locomotive made its trial trip over the primitive rails of the seventeen-mile Mohawk and Hudson road — a far cry even from that other day, thirty-eight years later, when the sagacious Commodore startled the financial world by his New York Central and Hudson River Railroad, with a capital of ninety million dollars.

CHAPTER III

THE GREAT PENNSYLVANIA SYSTEM

In the early forties the commercial importance of Philadelphia was menaced from two directions. A steadily increasing volume of trade was passing through the Erie Canal from the Central West to the northern seaboard, while traffic over the new Baltimore and Ohio Railroad promised a great commercial future to the rival city of Baltimore. With commendable enterprise the Baltimore and Ohio Company was even then reaching out for connections with Pittsburgh in the hope of diverting western trade from eastern Pennsylvania. Moreover the financial prestige of Philadelphia had suffered from recent events. The panic of 1837, the contest of the United States Bank with President Jackson, its defeat, and its subsequent failure as a state bank, the consequent distress in local financial circles — all conspired to shift the monetary center of the country to New York.

It was at this time that Philadelphia capitalists began to bestir themselves in an attempt to recover their lost opportunities. Philadelphia must share in this trade with the Central West. The designs of the Baltimore and Ohio Company must be defeated by bringing Pittsburgh into contact with its natural Eastern market. To this end, the Pennsylvania Railroad was incorporated on April 13, 1846, with a franchise permitting the construction of a railroad across the State from Harrisburg to Pittsburgh. An added incentive to constructive expansion was given by an act of the Legislature authorizing the Baltimore and Ohio to extend its line to Pittsburgh if the Pennsylvania Company failed to avail itself of its franchise.

In order to avoid the heavy cost of constructing a road between Philadelphia and Harrisburg, the Pennsylvania Railroad entered into arrangements with the Philadelphia and Columbia — a railroad opened in 1834 and owned by the State — which ran through Chester and Lancaster to Columbia. This road was primitive in the extreme and used both steam and horse power. As late as 1842 a train was started only when sufficient traffic was waiting along the road to warrant the use of the engine. Belated trains were hunted up by

horsemen. Yet the road was in those days famous for the "rapidity and exceptional comforts of the train service." Between Columbia and Harrisburg passengers westward bound had to use the Pennsylvania Canal.

Construction of the main line westward to Pittsburgh began at once and progressed rapidly. By making use of the Alleghany Portage Railroad from Hollidaysburg, the Pennsylvania Railroad eventually secured a continuous line from Harrisburg to Pittsburgh. But between Philadelphia and Harrisburg passengers were for a long time subjected to many inconveniences. Finally in 1857 the Pennsylvania Railroad bought the Philadelphia and Columbia from the State, rebuilt it, and extended it to Harrisburg. At the same time the Pennsylvania bought the main line of the Public Works, which included the Alleghany Portage Railroad. On July 18, 1858, the first through train passed over the entire line from Philadelphia via Mount Joy to Pittsburgh without transfer of passengers. At the same time the first smoking car ever attached to a passenger train was used, and sleeping cars also soon began to appear.

The railroad genius identified with the history of the Pennsylvania Railroad during the following

decade is J. Edgar Thomson. A man of vision and of great shrewdness and ability, he was more like the modern railroad head of the Ripley or Underwood type than of the Vanderbilt, Garrett, or Drew type. His interest was never in the stock market nor in the speculative side of railroading but was concentrated entirely on the development and operation of the Pennsylvania Railroad system. His dreams were not of millions quickly made nor of railroad dominance simply for the power that it gave; his mind was concentrated on the growth and prosperity of a vast railroad system which would increase with the years, become lucrative in its operations, and not only radiate throughout the State of Pennsylvania but extend far beyond into the growing West.

Under the Thomson management, which lasted until 1874, the record of the Pennsylvania Railroad was one of progress in every sense of the word. While Daniel Drew was lining his pockets with loot from the Erie Railroad and Commodore Vanderbilt was piling up his colossal fortune through consolidation and manipulation, J. Edgar Thomson was steadily building up the greatest business organization on the continent. In 1860, the entire Pennsylvania Railroad system was represented

merely by the main line from Philadelphia to Pittsburgh, with a few short branches. By 1869 the road had expanded within Pennsylvania alone to nearly one thousand miles and also controlled lines northward to the shores of Lake Erie, through the State of New York.

But the master accomplishment of the Thomson administration was the acquisition of the Pittsburgh, Fort Wayne and Chicago line in 1869. This new addition gave the Company its own connection with Chicago and made a continuous system from the banks of the Delaware at Philadelphia to the shores of Lake Michigan, thus rivaling the far-flung Vanderbilt line, a thousand miles long, which the industrious Commodore was now organizing. Shortly thereafter the Pennsylvania began to expand on the east also and obtained an entry into New York City by acquiring the United Railroad and Canal Company, which owned lines across the State of New Jersey, passing through Trenton.

In the latter years of the Thomson management it became more and more evident that it was important for the Pennsylvania Railroad to have further Western connections which would reach the growing cities of the Middle West. While the

Fort Wayne route made a very direct connection with Chicago and included branches of value, yet the keen competition which was developing in the expansive years following the Civil War made actual control of the Middle Western territory a matter of sound business policy. The Vanderbilt lines were reaching out through Ohio, Indiana, and Illinois; the Baltimore and Ohio was steadily developing its Western connections, and now Jay Gould had come actively on the scene with large projects for the Erie. To offset these projects, early in 1870 a "holding company" — probably the first of its kind on record — known as the Pennsylvania Company was formed for the express purpose of controlling and managing, in the interest of the Pennsylvania Railroad, all lines leased or controlled or in the future to be acquired by the Pennsylvania Railroad interests west of Pittsburgh and Erie. This Company took over the lease of the Fort Wayne route and also acquired control by lease of the Erie and Pittsburgh, a road extending northward through Ohio to Lake Erie.

After this date the expansion of the system west of Pittsburgh went on rapidly. In 1871 the Cleveland and Pittsburgh Railroad, which had been

opened as early as 1852, came under the Pennsylvania control. Soon after this, many smaller lines in Ohio were merged in the system. The most important acquisition during this period, however, was the result of the purchase of the great lines extending westward from Pittsburgh to St. Louis, with branches reaching southward to Cincinnati and northward to Chicago. This system — then known as the "Pan Handle" route and later as the Pittsburgh, Cincinnati, Chicago and St. Louis — was a consolidation of several independent properties of importance which had been gradually extending themselves over this territory during the previous decade. This new system, which embraced over fourteen hundred miles of road, gave the Pennsylvania a second line to Chicago, a direct line to St. Louis, a second line to Cincinnati, and access to territory not previously tapped.

While the achievements of the Pennsylvania Railroad Company during these years of consolidation and expansion are not to be compared with those of more modern times, it is well to realize that even as early as the seventh decade of the last century this railroad was always in the forefront in matters of high standards and progressive practice. It was the pioneer in most of the improvements

which were later adopted by other roads. The Pennsylvania was the first American railroad to lay steel rails and the first to lay Bessemer rails; it was the first to put the steel fire-box under the locomotive boiler; it was the first to use the air brake and the block signal system; it was the first to use in its shops the overhead crane.

In these earlier years also the Pennsylvania had established its enviable record for conservative and non-speculative management. No railroad wrecker or stock speculator had ever had anything to do with the financial control of the company, and this tradition has been passed on from decade to decade. The stockholders themselves, even in those days of loose methods and careless finance, had the dominating voice in the affairs of the company and were also factors in the approval or disapproval of any proposed policies. In the matter of its finances the Pennsylvania developed and established an equally clean record. The company began almost at the beginning to pay a satisfactory dividend on its shares and continued to do so right through the Civil War period. Since the through line from Philadelphia to Pittsburgh was opened, not a single year has passed without the payment of a dividend — a sixty-year record

which can be duplicated by no other American railroad system.

The Pennsylvania still continued to forge ahead even during the exciting period from 1877 to about 1889, when the trunk lines were aggressively carrying on that policy of cutthroat competition between Chicago and the Atlantic seaboard which resulted in so severely weakening the credit and position of properties like the Baltimore and Ohio and the Erie. The Pennsylvania, too, indulged in rate cutting, but the management was equal to the situation and made up in other directions what it lost in lower rates. It gave superior service, developed a high efficiency of operation, and steadily maintained its properties at a high standard. During these years the president was George B. Roberts, who had succeeded Thomas A. Scott in 1880.

Roberts's management spanned the period from 1880 to 1897 and embraced a decade of comparative prosperity for the country as a whole and nearly a decade of panic and industrial and financial depression. During the earlier decade the business of the Pennsylvania was continually benefited by the industrial development and growth which marked the period. It was at this time that

the Pittsburgh district took its permanent place as the great center of steel and iron manufacture. The discovery of petroleum in western Pennsylvania, creating an enormous new industry in itself, proved to be an event of far-reaching significance for the Pennsylvania Railroad. The extensive opening up of the soft coal sections of western Pennsylvania, Ohio, and Indiana, also meant much for this great system of railroads.

Still further developments in other directions accrued to the benefit of the Pennsylvania Railroad. In this period, by obtaining the control of a line to Washington, the system acquired a Southern artery running through Wilmington, Delaware, and Baltimore to Washington. Afterwards, with other roads, the Pennsylvania acquired control of the Richmond, Fredericksburg and Potomac Railroad and thus obtained a line to Richmond, Virginia. On the north and to the east the expanding movement also went on. In addition to the development of its main line from Philadelphia to Jersey City, the Pennsylvania acquired many other New Jersey lines, including the West Jersey and Seashore, a road running from Camden to Atlantic City and Cape May.

During the whole of the aggressive administrations

of both Thomas A. Scott and George B. Roberts the great system continued to spread out steadily until it had penetrated as far as Mackinaw City on the north and Chesapeake Bay on the south. Its network of lines stretched across the Eastern section of the continent from New York to Iowa and Missouri, while the intensive development of shorter lines in the State of Pennsylvania and to the north was unceasing. The Northern Central running south from Sodus Bay on Lake Ontario through central Pennsylvania to Baltimore, the Buffalo and Allegheny Valley extending from Oil City northward and joining the main system to the east, the Western New York and Pennsylvania operating north from Oil City to Buffalo and Rochester — these lines the Pennsylvania Railroad acquired and definitely consolidated in the Roberts régime.

After the retirement of Roberts, Frank Thomson, who had formerly been general manager, was placed at the head of the system for three years. But in 1899 Alexander J. Cassatt, who had for many years been identified with the Pennsylvania as officer, director, and stockholder, took the helm, and a new chapter and probably the greatest in the history of this remarkable railroad began.

The name of Alexander J. Cassatt will always

be linked with the comprehensive terminal developments in the region of New York City which were begun almost immediately on his accession to the presidency and which were carried forward on bold and far-reaching lines. Perhaps more than any other one person, Cassatt foresaw the approach of the day when New York City as a commercial center would outstrip both in density of population and in amount of wealth all the other cities of the world. He and his predecessors had for many years witnessed the great industrial development of the Pittsburgh district, where property values had grown by leaps and bounds and where the steadily advancing development of industry and material resources had been so unmistakably reflected in the increasing earning power and value of the Pennsylvania Railroad properties.

But while at Pittsburgh the road had everything to favor it as far as terminals and rights of way through the heart of the great industrial district were concerned, in the great Eastern metropolis the Pennsylvania Railroad was at an obvious disadvantage, particularly as compared with the New York Central, which had its splendid terminal rights penetrating to the heart of the city. Cassatt saw that his company must without delay

take a number of bold and, for the time, enormously expensive steps toward the development of terminal facilities in Greater New York or else forever abandon the idea of getting nearer the heart of the city than the New Jersey shore and thus run the risk, in the keen contest for commercial supremacy, of ultimately falling behind other more advantageously situated lines.

There were still further incentives to immediate action on the part of the Pennsylvania Railroad. While the New York Central was in an ideal position for handling all traffic destined for the New England States, the Pennsylvania could control practically none of this business, as its terminals were on the wrong side of the Hudson and necessitated not merely the inconvenient transfer of passengers but also the much more expensive handling of freight. Other disadvantages from which the Pennsylvania suffered were involved in its inability to make the most economical terms for foreign shipping, as a large proportion of such freight had to be constantly transferred on lighters to the New York and Brooklyn sides of the harbor. Thus any comprehensive plan for terminal development on the part of the Pennsylvania must necessarily include not only a tunnel system into

New York City but also an outlet through the city to Long Island and a connection with the New England railroads.

The first move in the development of this terminal system was the acquisition in 1900 of the control of the Long Island Railroad, embracing all the steam railway mileage on Long Island, with lines extending along both the north and south shores to Montauk Point. This acquisition added extensive freight yards and terminals on the Brooklyn side of the East River. The Company then obtained franchises and began the construction of its great tunnels under the North and East Rivers and entirely across New York City, with a mammoth passenger station at Seventh Avenue and Thirty-second Street. A great railroad bridge was planned to cross from Long Island to the mainland, connecting with the New York, New Haven and Hartford system, in the stock of which the Pennsylvania at this time purchased an interest.

The terminal construction occupied a period of many years and cost over one hundred million dollars, besides the added costs involved in building up and developing the old, worn-out Long Island Railroad. Only recently has the project

been rounded out and completed through the final construction of the important connection with the New England railroad systems. But the realization of this plan is undoubtedly the greatest achievement in all the long career of the Pennsylvania Railroad. Had the project been delayed for another decade, it probably could not have been accomplished because of the growing expense of operation and the difficulties of getting franchise rights and rights of way through and under the metropolis.

While the tunnel development is the notable achievement of the Cassatt régime, this remarkable man's name is also closely identified with the "community of interest" idea already explained. This "community of interest" scheme was pushed aggressively by Cassatt in coöperation with Harriman, Hill, and Morgan. Large stock purchases were made in the Norfolk and Western, the Chesapeake and Ohio, and the Baltimore and Ohio. As the latter road had in its turn acquired, jointly with New York Central interests, a working control of the Reading Company, and the Reading Company had secured majority ownership of the New Jersey Central system, it is apparent that the domination which the Pennsylvania had obtained over the

entire Eastern seaboard south of New York City and north of Baltimore was made nearly complete.

The "community of interest" plan held sway with the large railroads of the country and was very effective for perhaps half a dozen years, until the interstate commerce laws were amended in such a way as to give the Government complete control over railroad freight and passenger rates. In 1906 the Pennsylvania began to dispose of the bulk of its holdings in competing properties, the most notable transactions being the sale of its entire interest in the Chesapeake and Ohio to independent interests and a substantial part of its Baltimore and Ohio holdings to the Union Pacific Railroad. A few years later, when the Union Pacific was forced by the Federal courts to dispose of its control of the Southern Pacific Company, a trade was made between the Pennsylvania and the Union Pacific whereby the latter took from the Pennsylvania the remainder of its Baltimore and Ohio investment and gave in exchange a portion of its own large holding of Southern Pacific stock.

To get a fair idea of the meaning and magnitude of the great Pennsylvania Railroad system today one must do more than scan maps and study statistics. One should travel by daylight over its

main line from New York to Pittsburgh. Although the route is over the same ground which the road followed a generation or two ago, a four-track line runs practically all the way, with long stretches of hundreds of miles of five, six, and eight tracks. Where mountains were climbed thirty years ago, one will now find them bored by tunnels; where sharp curves were necessary before straight trackage only will be encountered today. Grades have been eliminated everywhere and the whole route has been modernized and strengthened by the laying of one hundred to one hundred and fifty pound rails.

Undoubtedly the fortunate location of the Pennsylvania lines in the half dozen States which represent the financial and industrial heart of the continent has had much to do with its vast growth and the expansion of its business; but its high reputation can be explained only by the long record of its superior methods and management. One of the primary objects of Pennsylvania Railroad policy has been to keep pace with the growth of the country. Instead of following in the wake of industrial progress and making its improvements and extensions after its competitors had made theirs, its management has usually had the foresight to prepare well in advance for future needs.

CHAPTER IV

THE ERIE RAILROAD

BEFORE introducing a friend to a distinguished stranger, it is advisable to give him some account of the person whose acquaintance he is about to make; and so, fellow-traveler, whom I introduce to the New York and Erie Railroad, it may be well to prefix here a brief sketch of the history and present condition of this, the Lion of Railways. True, he is yet in an unfinished state, but you will find that what there is of him is complete, and of wondrous organization and activity. His magnificent head and front repose in grandeur on the shores of the Hudson; his iron lungs puff vigorously among the Highland fastnesses of Rockland; his capacious maw fares sumptuously on the dairies of Orange and the game and cattle of Broome; his lumbar region is built upon the timber of Chemung, and the tuft of his royal extremity floats triumphantly on the waters of Lake Erie.

This exultant, characteristically American, description appeared in Harper's *Guide-Book of the New York and Erie Railroad*, published in 1851, soon after the opening of the main line of more than

four hundred and sixty miles from Piermont on the Hudson to Dunkirk on Lake Erie. That this railroad, which after nearly twenty years of struggle and of financial vicissitudes had finally linked the Great Lakes with the Atlantic coast, was looked upon as a property of wonderful character and limitless future is indicated in all the railroad literature of that time. Appleton's *Illustrated Handbook of American Travel*, published in 1857, devotes several pages to a description of this remarkable achievement in railroad extension and among other things says:

This great route claims a special admiration for the grandeur of the enterprise which conceived and executed it, for the vast contribution it has made to the facilities of travel, and for the multiplied and various landscape beauties which it has made so readily and pleasantly accessible. It traverses the southern portion of the Empire State in its entire length from east to west, passing through countless towns and villages, over many rivers, through rugged mountain passes now, and anon amidst broad and fertile valleys and plains. In addition it has many branches, connecting its stations with other routes in all directions, and opening new stores of pictorial pleasures. . . . An interesting feature of this road is its own telegraph, which runs by the side of the road and has its operator in nearly every station house. This telegraph has a double wire, enabling the company to transact the public, as well as their

own private business. Daily trains leave for the west on this route, with connections by boat from the foot of Duane Street, morning, noon, and night.

The Erie Railroad system was foreshadowed in the time of Queen Anne, when the Colony of New York appropriated the sum of five hundred dollars to John Smith and other persons for the purpose of constructing a public road connecting the port of New York with the West in the vicinity of the Great Lakes. The appropriation was coupled with the condition that within two years the beneficiaries should have constructed a road wide enough for two carriages to pass, from Nyack on the Hudson River to Sterling Iron Works, a distance of about thirty miles; and that they should cut away the limbs of trees over the track in order to allow the carriages to pass. In this way began the internal improvement system of the State of New York, which after the lapse of more than a century resulted in opening the Erie Canal and in projecting a railroad system connecting New York and the valley of the Hudson with Lake Erie.

After the opening of the Erie Canal in 1825, the Legislature of New York directed a survey of a state road which was to be constructed at public expense through the southern tier of counties from

the Hudson River to Lake Erie. The unfavorable profile exhibited in the survey apparently caused the project to be abandoned. But the idea still held sway over the minds of many people; and the great benefits brought to the Mohawk Valley and surrounding country by the Erie Canal led the southern counties to demand a transportation route which would work similar wonders in that region. This growing sentiment finally persuaded the Legislature to charter in April, 1832, the New York and Erie Railroad Company, and to give it authority to construct a line and to regulate its own charges for transportation.

During the following summer a survey of the route was made by Colonel De Witt Clinton, Jr., and in 1834 a second survey was made of the whole of the proposed route. When the probable cost was estimated, many opponents arose who declaimed the undertaking was "chimerical, impractical, and useless." The road, they declared, could never be built and, if built, would never be used; the southern counties were mountainous, sterile, and worthless, and afforded no products requiring a market; and, in any case, these counties should find their natural outlet in the valley of the Mohawk. This antagonism was successfully opposed,

however, and the construction of the road was begun in 1836.

The panic of 1837 interfered with the work, but in 1838 the state Legislature came forward with a construction loan of three million dollars, and the first section of line, extending from Piermont on the Hudson to Goshen, was put into operation in September, 1841. In the following year the company became financially embarrassed and was placed in the hands of receivers. This catastrophe delayed further progress for years, and it was not until 1846 that sufficient new capital was raised to go on with the work. The original estimate of the cost for building the entire line of 485 miles had been three million dollars, but already the road had cost over six millions and only a small portion had been finished. The final estimate now rose to fifteen millions, and, although some money was raised from time to time and new sections were built, there was no certainty that the entire road would ever be completed. Ultimately the State of New York canceled its claim against the property, new subscriptions of some millions were secured, and more money was raised by mortgaging the finished sections.

Finally, in 1851, after eighteen years of effort,

the line was opened to Lake Erie. In addition there had been added various feeders or branches, giving the road an entry into Scranton, Pennsylvania, and into Geneva and Buffalo, New York. It had its terminus on Lake Erie at Dunkirk and its eastern terminus at Piermont, near Nyack on the Hudson, about twenty-five miles by boat from New York City.

The financial condition of the Erie at this time manifested the beginning of that general policy of improvidence and recklessness which afterward, for nearly a generation and a half, made the company a speculative football in some of the most disreputable games of Wall Street stock-jobbers. For though the original estimate had been three millions and the highest estimate of the cost during construction had been fifteen million dollars, the company, in 1851, started its career with capital obligations of no less than twenty-six millions — a very large sum for those days.

The fact that these initial obligations constituted a heavy burden became apparent when the Erie began operations. They made necessary such high freight rates that shippers held indignation meetings and again and again made appeals for legislative relief. Although much money had been

raised after 1849 for improvements, the condition of the Erie steadily grew worse. It soon became notorious for many accidents due to carelessness in running trains and to the breaking of the brittle iron rails.

But in spite of these drawbacks the business of the Erie grew. In 1852 it acquired the Ramapo and Paterson and the Paterson and Hudson River railroads and in this way it obtained a more direct connection with New York City. It changed the tracks of its new railroads to the six-foot gage, which the Erie had adopted from the start and which it persisted in maintaining for many years despite the world-wide practice of establishing a standard width of four feet eight and one-half inches.

The most conspicuous figure in the history of the Erie Railroad system in these early days was Daniel Drew. From 1851, when the main line was opened, until 1868, this man was a director and, for the larger part of the time, treasurer. Born in 1797, he had driven cattle when a boy from his native town of Carmel in Putnam County to the New York City market and, for some years later, he had been proprietor of the Bull's Head Tavern. Shrewd, unscrupulous, illiterate, good-natured, and

sometimes generous, he was in many ways unlike his great adversary in the railroad world, Commodore Vanderbilt. Drew affected a pious and sanctimonious attitude in all his dealings, while Vanderbilt had a more frank and open nature and usually made no pretensions to righteousness.

For many years following 1851, Drew, who owned or controlled nearly one-half the stock of the Erie, appeared to think that his office of treasurer carried with it the right to manipulate the stock of the road at any time it might help his pocketbook to do so. He frequently advanced money which the road could not obtain elsewhere, always taking full security and excessive commissions. This practice gave him the name of "speculative director," and by the time his great contests with Commodore Vanderbilt broke out, he was reputed to be worth many millions, most of which he had acquired by juggling in Wall Street with Erie securities.

The entire period in the affairs of the Erie system from the ascendency of Daniel Drew in 1851 to the end of the Civil War witnessed an endless succession of stock-market exploits both large and small. In the spring of 1866, however, Drew found an opportunity to achieve a real masterpiece in

manipulation. The stock of the Erie road was then selling at about 95 and the company was in pressing need of funds. The treasurer came to the rescue as usual and made the necessary advances on adequate security. The company had in its treasury a considerable amount of unissued stock and had also the legal right to issue bonds to the extent of $3,000,000 which could be converted into stock. Drew took these bonds and the unissued stock as security for a loan of $3,500,000.

It so happened, naturally, that Drew was soon heavily short of Erie stock in Wall Street. The market was buoyant; speculation was rampant; and the outside public, the delight and prey of Wall Street gamblers, were as usual drawn in by the fascination of acquiring wealth without labor. All this time our friend, Daniel Drew, was quietly selling Erie stock and closing contracts for the future delivery of the certificates; and he was doing this at rising prices. As the days went by, his grave, desponding manner grew more and more apparent. Erie stock continued to rise. In the loan market its scarcity became greater hour by hour. The rumor began to spread that "Uncle Daniel" was cornered. His large obligations for future delivery must be met. Where was the Erie

stock to come from? The stock continued to soar, and Treasurer Drew seemed to become more and more depressed.

Then the blow fell. Drew laid his hands on the collateral which he held for his loan to the Erie. In the twinkling of an eye his $3,000,000 in Erie bonds was converted into Erie stock, which he proceeded to dump in Wall Street. Erie quotations fell from 90 to 50. Every one at last realized the trap — but not before Daniel Drew had pocketed a few millions in profits.

By this time Drew had come to be looked upon as a stock operator to be both admired and feared, and this incident took its place in Wall Street history as a brilliant coup side by side with Vanderbilt's Harlem Railroad and other celebrated exploits. It was soon followed, however, by much more sensational events. We have seen that the portentous figure of Vanderbilt was just at this time looming up in the railroad world, and Vanderbilt had his own theory of the management and financing of railroads. It was inevitable that he should clash with Drew. He was a few years older than Drew, and the two men, as we have seen, had much in common. Both were well on in life before they had transferred their activities to

steam railroads. When finally, in 1868, they crossed swords in connection with the two railroad systems extending through New York State, both were more than seventy years old and had been successful in the acquisition of millions by methods of their own invention. They were no doubt equally unscrupulous, but, while Drew was by nature a pessimist and "bearish," Vanderbilt, in the Wall Street vernacular, was always a "bull."

Having obtained control of the New York Central, the Hudson River, and the Harlem railroads, Commodore Vanderbilt now decided in the summer of 1867 to go after the Erie, of which Drew was nominally in possession, although no one knew when he owned a majority of the stock or when he was temporarily short of it. Usually he loaded up as the annual election of officers approached and liquidated shortly thereafter. Besides Vanderbilt there was another interest at this time trying for the control of the Erie. This interest consisted of certain Wall Street speculators and certain Boston capitalists who proclaimed themselves railroad reformers. These so-called reformers were as unscrupulous and crafty as either of the other men, and they really represented nothing but an attempt to raid the Erie treasury in the interest

of a bankrupt New England corporation known as the Boston, Hartford and Erie Railroad. As was well said, the name of this latter road was "synonymous with bankruptcy, litigation, fraud, and failure."

The Erie Railroad control was always nominally for sale, and, as the annual election approached, a majority of stockholders stood ready to sell their votes to the highest bidder. Commodore Vanderbilt cleverly secured the coöperation of the "reformer" element, corralling their proxies, and thus he appeared to be in a position to oust the Drew interests without difficulty. On the Sunday preceding the election the Commodore saw Drew and amicably explained to him the trap he had laid, and showed him clearly that there was no way out of the situation. Upon this disclosure, Treasurer Drew at once faced about and agreed to join hands with Vanderbilt in giving the market for the stock the strong upward twist it had lacked before that hour. Jointly they would make so much money that neither side would lose anything. "Uncle Daniel" went away apparently satisfied and contented with the compromise.

But the Commodore had not finished. A few hours later he took the Boston adventurers into his confidence and explained that he proposed to

continue Drew in the directorate. The Boston men were puzzled and confused by this sudden change of front. Later, all parties met at Drew's house, and Vanderbilt brought the Boston men to terms by proposing a plan to Drew whereby they would be entirely left out. This ruse succeeded and a written agreement to the advantage of all, but at the expense of the outside stockholders and of the general public, was then drawn up.

This, however, was only the beginning of the fight. Vanderbilt was now in the Erie as a joint owner, but he had stretched out his hands to control the road and he meant to succeed. In February of 1868, Frank Work, the single representative of Vanderbilt on the Erie board, applied for an injunction against Treasurer Drew and his brother directors to restrain them from the repayment of the $3,500,000 borrowed by the railroad from Drew in 1866, and to restrain Drew from taking any legal steps toward compelling a settlement. Judge Barnard granted a temporary injunction, and two days later Vanderbilt's attorney petitioned for the removal from office of Treasurer Drew. The papers presented in the case exposed a new fountain of Erie stock which had up to that time been entirely overlooked.

A recently enacted law of the State of New York — probably fathered by Drew — authorized any railroad company to create and issue its own stock in exchange for the stock of any other railroad under lease to it. Upon the basis of this law Drew and his close satellites had secretly secured ownership of a worthless piece of road connecting with the Erie and known as the Buffalo, Bradford and Pittsburgh. Then, as their personal needs in the stock-market or at elections demanded, they had supplied themselves with new Erie stock by leasing the worthless road to the Erie and then exchanging Erie stock for the worthless stock of the leased line. The cost of the line to Drew and his friends, as financiers, was about $250,000. They then issued, as proprietors, $2,000,000 in bonds of the road, payable to one of themselves as trustee. This person then shifted his character, became counsel for both sides, and drew up a contract leasing the line to the Erie for 499 years, the Erie agreeing to guarantee the bonds in consideration. These men then reappeared as directors of the Erie and ratified the lease. After that it was a simple matter to divide the loot. The Erie was thus saddled with a $2,000,000 mortgage at seven per cent in addition to a further issue of capital stock.

Following the first injunction another was now issued restraining Drew and the Erie board from making any further issues of stock, by conversion of bonds or otherwise, and also forbidding the Erie to guarantee any further issues of bonds. An additional injunction forbade Drew from having any transactions in Erie stock or fulfilling any contracts until he had returned to the treasury the shares involved in his loan transaction of 1866 and in the purchase of the worthless Buffalo, Bradford and Pittsburgh road.

Matters now looked forbidding for Treasurer Drew. Instead of being allowed to manufacture fresh Erie stock certificates at his own will, as had been his habit for fifteen years, he was to be cornered by a legal writ and forced to work his own ruin. But notwithstanding the apparently desperate situation it was quite evident that Drew's nerves were not seriously affected. Although he seemed rushing on destruction, he continued day after day to put out more short stock, all in the face of a steadily rising market. His plans, apparently, were carefully matured, and he said that if the Commodore wanted the stock of his road he would let him have all he desired — at the proper price.

As usual the Erie treasury was short of funds, and as usual "Uncle Daniel" stood ready to advance all the money required — that is, on proper security. There was but one kind of security to offer and that was convertible bonds. No stock could be issued by the company for less than par, but convertible bonds could be disposed of by the directors at any price. A secret meeting of the executive committee was held, at which it was voted to issue immediately and to offer for sale $10,000,000 in convertible bonds at 72½. Drew's broker at once became the purchaser of $5,000,000 worth. In ten minutes after the meeting had adjourned, the bonds had been issued, their conversion into stock demanded and made, and certificates for 50,000 shares of stock deposited in a broker's safe, subject to Drew's order.

A few days later came the injunction, and Erie stock began to soar in the markets, in response to which "Uncle Daniel," who had been industriously selling his many thousands of new shares, now determined to bring up the reserves and let the eager buyers have the other five millions; but before the bonds could be converted the injunction had been served. The date for the return of the writ was Tuesday the 10th of March; but the Erie

ring needed less time than this and decided on Monday the 9th as the day to defeat the corner.

Saturday and Sunday were busy days for Drew and his friends. All his brokers had been enjoined, so a dummy was made the nominal purchaser of the bonds. This dummy then made his formal demand for the conversion of the bonds and was refused. All this was done upon affidavit, as it was the plan of Drew to get from some judge a writ of mandamus to compel the Erie Railroad to convert the bonds. The stock certificates for which they were to be exchanged were signed in blank and made ready for delivery.

Drew had agreed to sell 50,000 shares of stock at 80 to the firms of which Jay Gould and James Fisk, Jr., were members; they were also Erie directors. On Monday morning, the 9th of March, the certificates, filled out in the names of these firms, were handed by the secretary to an employee who was directed to carry them from the office of the company in West Street to the transfer clerk in Pine Street. The messenger left, but in a moment or two returned to report to the apparently amazed secretary that Fisk had met him outside the door, had taken the certificates away from him, and "had run away with them." It was true. The stock

certificates had been "stolen" and were beyond the control of an injunction. The stock certificates next appeared in every part of Wall Street.

On the same day the Erie representatives applied to Judge Gilbert of Brooklyn for an injunction on the ground that certain persons, including Judge Barnard, had entered into a conspiracy to speculate in Erie stock and to use the process of the courts to aid the speculation. To the amazement of everybody, Judge Gilbert issued an injunction restraining all parties to all the other suits from further proceedings; in one paragraph ordering the Erie directors to continue in the discharge of their duties — in direct defiance of the injunction of one judge — and in the next paragraph forbidding the directors to desist in the conversion of bonds — in direct defiance of another judge. The Drew interests were now enjoined in every direction. One judge had forbidden them to move, and another judge had ordered them not to stand still.

It was a strategic position which Drew and his agents could not have improved upon, and while matters stood this way the 50,000 shares of Erie stock had been flung on the market. Vanderbilt, who was ignorant of this situation, bought the new stock as eagerly as the old. Then, when the

facts came out, the quotations dropped with a thud. Uncle Daniel was victorious; the attempted corner had been a failure; and the Commodore was holding the bag.

Further dramatic events followed. The Erie directors learned that process for contempt had been issued and that their only chance of escape from jail lay in immediate flight. So, stuffing all that was worth while of the Erie Railroad into their pockets, they made off under cover of darkness to Jersey City. One man carried with him in a hackney coach over $6,000,000 in greenbacks. Two of the directors lingered and were arrested; but a majority collected at the Erie station in Jersey City and there, free from interference, went on with the transaction of business. Without disturbance they were able to count their expenses and divide the profits.

Vanderbilt was now loaded up with reams of Erie stock at high costs, and the load was a severe strain on him. He dared not sell for fear of causing a financial collapse. Drew had taken away about seven million dollars of his money and an artificial stringency had been created in Wall Street by this exodus of most of its available cash. But Vanderbilt weathered the storm and, as his generally

optimistic attitude inspired confidence, the sky began to clear.

But this stock-market battle did not end the war. New injunctions flew in all directions. Osgood, son-in-law of Vanderbilt, was appointed receiver of the 100,000 shares of illegally issued stock and was immediately enjoined from acting by another judge. Then Peter B. Sweeney, of the Tammany ring, was appointed in his stead without notice to the other side. There was nothing for a receiver to do, as every dollar he was to "receive" was known to be in New Jersey and beyond his reach. Nevertheless he was subsequently allowed a fee of $150,000 by Judge Barnard for his services!

While the legal battle was going on neither Drew nor Vanderbilt was idle. A plot was arranged for bringing the Erie directors over by force, but this failed. In the meanwhile the Erie directors persuaded the New Jersey Legislature to rush through a bill making the Erie Railway a New Jersey corporation. This move, however, was intended merely to meet an emergency. It was the intention of the Erie interests to do their real work with the Legislature at Albany. This was also the intention of the Vanderbilt interests. Consequently, during the subsequent session, the grafters in that body were

wooed by both sides. When the Legislature convened, a bill was promptly introduced making legal the recent issue of Erie stock, regulating the power to issue convertible bonds, providing for the guaranty of the bonds of the Boston, Hartford and Erie, and forbidding the consolidation of the Central and the Erie under the control of Cornelius Vanderbilt. But evidently the Commodore's purse was open wider than "Uncle Daniel's," for this bill was defeated by a decisive vote.

Now Jay Gould appeared upon the scene. He left Jersey City with half a million of the Erie's money in his pocket and arrived in Albany immediately after the defeat of this bill. On his arrival he was arrested on a writ issued against him for contempt of court and was held in bail of half a million dollars for his appearance in New York a few days later. He appeared before Judge Barnard in New York and was put in the charge of a sheriff. But the sheriff was served with a writ of *habeas corpus*, and Gould was again brought before the court. Then in some mysterious way the hearing was deferred and Gould returned to Albany, taking the officer as a traveling companion.

After reaching his destination Gould became so ill that he could not return to New York, though

he managed to go to the Capitol in a driving snowstorm. Here he became rapidly convalescent, as did also many members of the Legislature. Members, indeed, who had been too sick or too feeble to attend the legislative sessions during this cold winter suddenly found their health returning and flocked to Albany on the fastest trains. Gould stayed in Albany until April, and by this time a remarkable change had come over the mentality of a majority of the legislators. On the 13th of April a bill was presented in the Senate which met the approval of the Erie interests and which Judge Barnard afterwards designated as a bill for legalizing counterfeit money. This bill, which was passed after due debate, legalized the issues of Erie bonds and stocks which had been put out by Drew; it provided for the guaranty of the bonds of connecting roads as desired by Drew; and it forbade all possible contracts for consolidation or division of receipts between the Erie and the Vanderbilt roads, a provision also desired by Drew. In fact it was the same bill in different form that had been voted down so decisively a short time before.

But the real tug of war was to get the bill through the lower House. Fabulous stories were told of money which would be expended and the

market quotations for votes never soared so high. Then, at the critical moment, Vanderbilt surrendered, made a secret deal with his foe, and withdrew his opposition to the bill. The anger of the disappointed grafters and vote-sellers knew no bounds, and they immediately set to work passing other bills which they felt would annoy or injure Vanderbilt, with the hope that he would still be induced to give them what they regarded as their rightful spoils.

The details of this settlement between Drew and Vanderbilt were not announced until some months afterward. By the terms agreed on Vanderbilt was relieved of 50,000 shares of Erie stock at 70, payable partly in cash and partly in bonds guaranteed by the Erie, and received $1,000,000 in cash for an option given the Erie Railroad to purchase his remaining 50,000 shares at 70 within four months, besides about $430,000 to compensate his friends who had worked so heroically for him. This total sum of nearly $5,000,000 no doubt represented part of the "slush fund" which Drew expected that the company would have to give up to the venal legislators, and it was therefore no hardship to hand it over to Vanderbilt instead.

As a part of the general settlement the Boston

interests were relieved of their $5,000,000 of largely worthless bonds of the Boston, Hartford and Erie Railroad, for which they received $4,000,000 of Erie securities. Thus in all about $9,000,000 in cash or securities was drawn out of the Erie treasury in final settlement of this great stock-market manipulation. And this does not include the pickings of Gould and Fisk and the smaller fry, of which there is no official record. But that these gentlemen did not go empty-handed there is not the shadow of a doubt!

The sensational stock-market deal between the Drew and Vanderbilt interests was but a truce, however, and did not settle the troubles of the Erie. Jay Gould was now becoming a dominating factor and in October of 1868 was chosen president. The various stock-market struggles that ensued from the ascendency of Jay Gould to the receivership of the Erie in 1875 is a long and intricate tale. Suffice it to say that the events were generally similar to those already recounted — stock-market corners, over-issues of bonds and stocks, injunctions, court orders, arrests, legislative bribes. Less than a week after his election Jay Gould frankly announced that the company had just issued

$10,000,000 of convertible bonds and that a third of these had already been converted into stock. He further announced that the company now had $60,000,000 of common stock outstanding, whereas the public had understood that it was only $45,000,000.

During the few years that followed, the poor Erie was systematically looted. Millions were wasted in New York real-estate speculation, and the company's money was used in the erection of the Grand Opera House on Twenty-third Street, to which the executive offices of the Erie Railroad were moved. Finally the new ring, comprising as leading spirits Jay Gould and James Fisk, Jr., eliminated Daniel Drew and left him high and dry without a cent, through a new stock corner. About this time the road was financially on its last legs, and Jay Gould was appointed receiver. This started further litigation which dragged on for several years until, in 1874, Gould was turned out by General Daniel E. Sickles in combination with the English shareholders. The new interests, when they finally got control, elected an entirely new management and made H. J. Jewett, a practical railroad man, president. But the Erie was already bankrupt, and not much could be done toward

saving the situation. In May, 1875, the road confessed inability to meet its obligations, and Jewett was appointed receiver.

It was three years from the date of the receivership before the Erie property was taken out of the hands of the courts. In April, 1878, a new company, the New York, Lake Erie and Western Railroad, took over the property; Jewett was elected its president, and a new chapter in the history of the property began.

Had the reorganization of the Erie been drastic enough, the road might not so soon have fallen into financial difficulties again, for it owned valuable coal lands in Eastern Pennsylvania and rapidly increased its earnings in this region. Moreover the extension of the system westward should have increased its earning capacity. Up to this time the Erie had no Chicago connection and was at an obvious disadvantage compared with its competitors. It improved this situation in 1881 by acquiring the New York, Pennsylvania and Ohio, and the franchise of the Chicago and Atlantic Railway. Two years later it obtained control of the Cincinnati, Hamilton and Dayton and found itself in a position in which it could compete for through traffic with the Pennsylvania and the New York Central.

But in carrying through these extensive plans, the Erie again became involved in financial difficulties; the sensational Grant and Ward failure in Wall Street in 1884 was a severe blow to the company's credit, as this firm was at that time doing important financing for the Erie. The English security holders stepped to the front again, demanded President Jewett's resignation, and elected John King in his stead.

In 1885 and 1886 a financial readjustment took place, but the company continued to carry the bulk of the heavy load of obligations which had been created during the years of the Drew and Gould managements. It was surely an evidence of the inherent worth of the property that during the half dozen or more years following, the Erie succeeded in struggling along in the face of all its financial and other handicaps and at the same time showed substantial growth in the volume of its business. The company was kept above water until 1893 without again appealing to the courts; but by that time the indebtedness had once more mounted, and in July of that year Erie receivers were appointed for the fourth time in its history.

The name of Pierpont Morgan is closely identified with the story of the railroad during this latest

reorganization period. Morgan's firm came to the front in 1894, with the powerful backing of the large English interests, and proposed a plan which involved heavy sacrifices by many of the security holders but which was designed to insure the permanent future of the property. The plan was vigorously opposed, however, by Edward H. Harriman, August Belmont, and other powerful interests, and it was not until August, 1896, that a final compromise was effected and a reorganization was carried through. But at last the Erie was taken out of receivership, and an entirely new company, intelligently designed and having ample working capital for future development, was formed with E. B. Thomas at its head. This new president, like Daniel Willard of the Baltimore and Ohio and many of the modern railroad leaders, was a practical railroad man who had worked up from the ranks and who had no large financial interest or banking connections to divert his attention from the real business of management. Under Thomas, who remained at the head of affairs from 1896 to 1900, the Erie made substantial progress. The system was solidified and its territory was more uniformly and systematically developed. In 1898, the Erie secured control of the New York,

Susquehanna and Western system, gaining thereby an important branch to Wilkesbarre; and in 1901 it purchased jointly with the Lehigh Valley Railroad the stock of the Pennsylvania Coal Company of which the Erie later became sole owner. The real achievement of the Thomas administration was the development of the property as a heavy carrier of anthracite coal. On the financial side during this period the credit of the House of Morgan, intelligent administration, and modern methods did much to improve the reputation of the Erie and enable it to live down its bad inheritance.

In 1901 Frederick D. Underwood succeeded Thomas. Like his predecessor, Underwood represented the modern type of railroad president — a hard-working, eminently practical big business manager of great executive talent. Underwood's idea was to make the Erie a great freight-carrying system by developing its tonnage and its freight capacity in every way possible. Consequently he favored opening up the property more extensively in the soft coal fields of Ohio and Indiana, reconstructing roadbeds, laying extra tracks, and eliminating grades and curves.

The history of the Erie Railroad ever since 1901 has been a record of progress. During these years

the system has been practically rebuilt. It now has a double track from New York to Chicago; it has extensive mileage in the soft coal regions of Ohio and Indiana, and its soft coal tonnage today far overtops its tonnage of anthracite coal; its train load averages far higher than that of the New York Central or of any other Eastern trunk lines except the Pennsylvania; its steep grades throughout New York State have been for the most part eliminated, and many short cuts for freight traffic have been built.

In carrying through these extensive developments in fifteen years the Erie has spent hundreds of millions of dollars. More money indeed has been used legitimately for improvement and development since the reorganizaton of 1896 than during the previous sixty years of its existence. Of course this outlay has meant that the Erie has had to create new mortgages and borrow many millions; but a large part of the expenditure for improvement has come directly from earnings. The Underwood administration has been conservative in paying dividends and the stockholders grumble. But the Erie is at last coming into its own. Instead of being a speculative football and a hopelessly bankrupt road, as it was for nearly forty years, it

is now in the forefront of the great trunk lines of the eastern section of the United States. It is no longer, what it was called for many years, the "scarlet woman of Wall Street," but is a respectable member of the American railroad family.

CHAPTER V

CROSSING THE APPALACHIAN RANGE

The story of the Baltimore and Ohio Railroad takes us back more than ninety years. When the scheme for the construction of a railroad from Baltimore to the waters of the Ohio River first began to take form, the United States had barely emerged from the Revolutionary period. Many of the famous men of that great day were still living. John Adams and Thomas Jefferson had been dead only a year; Madison and Monroe had recently retired from public life; John Quincy Adams held the office of President, and the "reign" of Andrew Jackson had not yet begun.

At this time steam navigation on the rivers was only in its beginnings, but no one could doubt that it would come into general use. Two decades had passed since the *Clermont* had been launched on the Hudson by Robert Fulton, and steamboats were now carrying cargoes successfully against the swift

currents up the Mississippi from New Orleans and were threatening the extinction of the aggressive flatboat traffic. Great strides had also been made in the construction of turnpike roads. The famous National Pike from Cumberland to Vandalia, Illinois, had been in large part completed and had done much for the opening up of the Western territory.

Canal building was likewise an extensive development of this period. The idea of connecting the waters of the Chesapeake with those of the Ohio had been broached by George Washington before the Revolution, and he had also prophesied the union of the Hudson and Lake Erie by canal. He believed that a country of such great geographical extent as the United States could not be held together except by close commercial bonds.

The opening of the Erie Canal to New York in 1825 stimulated other cities on the Atlantic seaboard to put themselves into closer commercial touch with the West. This was especially true of the city of Baltimore. A canal connecting Chesapeake Bay and the Ohio River was advocated to protect the trade of Baltimore and the South from the competition of New York and the East which would inevitably result from the construction of the Erie Canal and the Public Works of

Pennsylvania. But discouragements in plenty frustrated the plan. The cost was believed to be excessive and the engineering difficulties were said to be almost insuperable. George Bernard, a French engineer, was of the opinion that the high elevations and scarcity of water along the route would prevent such a canal from having much practical value. For these reasons Baltimore believed that its position as a center for the rapidly developing Western trade was slowly but surely slipping away.

This was the situation that led to the building of the Baltimore and Ohio Railroad. Two men — Philip E. Thomas and George Brown — were the pioneers in this great undertaking. They spent the year 1826 investigating railway enterprises in England, which were at that time being tested in a comprehensive fashion as commercial ventures. Their investigation completed, they held a meeting on February 12, 1827, including about twenty-five citizens, most of whom were Baltimore merchants or bankers, "to take into consideration the best means of restoring to the city of Baltimore that portion of the western trade which has lately been diverted from it by the introduction of steam navigation and by other causes." The outcome was an application to the Maryland Legislature

for a charter for a company to be known as "The Baltimore and Ohio Railroad Company" having the right to build and operate a railroad from the city of Baltimore to the Ohio River. The formal organization took place on April 24, 1827, with Philip E. Thomas as president and George Brown as treasurer. The capital of the proposed company was fixed at five million dollars.

The construction of the railroad began on July 4, 1828. The venerable Charles Carroll of Carrollton, then more than ninety years old and the only surviving signer of the Declaration of Independence of fifty-two years before, said on this occasion, as he laid the first stone: "I consider this among the most important acts of my life, second only to my signing the Declaration of Independence." His vision was indeed prophetic.

It was determined that the first section of road constructed should extend to Ellicott's Mills, twelve miles distant, but, owing to delays in obtaining capital, the actual laying of the rails was not begun until the fall of 1829, and this first section was not opened for traffic until May 22, 1830. At first, experiments were made with sails for propelling the cars, but it was soon found that a more effective source of power was supplied by mules

and horses. The *Flying Dutchman*, one of the cars devised to furnish motive power, provided for the horse or mule a treadmill which would revolve the wheels and make the distance of twelve miles in about an hour and a quarter. Steam locomotives at this time were in their infancy and, until the opening of the Liverpool and Manchester Railroad in this same year, they had attained a speed of only six miles an hour. Horses and mules, and even sail cars, made more rapid progress than did the earliest locomotive. In spite of these crude and primitive facilities for transportation, however, the traffic on the new railroad was of large volume from the beginning, and the company could not handle the amount of merchandise offered for transport in the first months.

Construction was now rapidly pushed ahead, and by 1832 the whole line had been opened to Point of Rocks, with a branch to Frederick, Maryland, making seventy-two miles in all. In 1831, steam locomotives were tested, and one of them, the *York*, was found capable of conveying fifteen tons at the rate of fifteen miles an hour on level portions of the road. This achievement was regarded as a great triumph, and in 1832 the directors of the road called attention to "the great

increase in velocity" that had been obtained in this way.

From this time forward the expansion of the railroad proceeded with a certainty born of success. A branch was built to Washington and the main line was extended to Harper's Ferry. Beyond this point construction was slow because financial difficulties stood in the way, and it was not until after the panic of 1837 that further aggressive building began. But by 1842 the line was completed to Cumberland, Maryland, and by 1853, to Wheeling. Meanwhile, the branch from Cumberland to Parkersburg, Virginia, was built. The road now comprised a total system of more than five hundred miles and reached two points of importance on the Ohio River, one northward near the Pennsylvania-Ohio state line and one southward in the direction of Cincinnati. The Parkersburg extension was of great importance because it opened a through route to St. Louis, by means of the Cincinnati and Marietta Railroad — which was at this time completed from Cincinnati to Belpre, Ohio, opposite Parkersburg — and the Ohio and Mississippi, which extended more than three hundred miles from St. Louis to Cincinnati.

Times were not the best, however, and, although

much traffic was developed, the immense cost of the extensions heavily burdened the Baltimore and Ohio Company, while the panic of 1857 seriously embarrassed its credit. Soon after this panic and before the company had begun to recover from its effects, John W. Garrett, one of the large stockholders in the road and son of a Baltimore banker, was elected to its presidency, and a new chapter in the history of the Baltimore and Ohio began. Almost immediately following Garrett's election, a remarkable change became apparent. Losses were turned into gains; deficits were converted into surpluses; and soon Garrett had gained the reputation of being the most remarkable and efficient railroad manager in the world. He seemed to be almost an Aladdin of railroad management for, even when he could not show increases in amount of business done, he reported greater profits by showing lower expenses. In those days the railroads did not furnish detailed reports of business to the stockholders or to the public. At the annual meetings it was customary for a president or the directors simply to announce, either orally or in a brief printed statement, the amount of gross business and profits for the year. No such thing as a balance sheet or

detailed financial statement saw the light of day—practically everything was taken by the stockholders on faith. And great was their faith. When, therefore, Garrett announced large increases in profits in years when most railroads were standing still or were incurring losses, he was implicitly believed.

Under Garrett's management a new era of expansion almost immediately began; work was started on the long delayed branch to Pittsburgh and plans were laid for establishing a line of steamships from Baltimore to the leading European ports. But the Civil War, which bore heavily on the Baltimore and Ohio, interfered with these ambitious schemes. Early in 1861 the Confederates took possession of a large part of the line east of Cumberland; in the next four years important sections of the road were repeatedly destroyed and rebuilt, as they passed into the hands of the Federal or Confederate troops. The company, however, managed to get through without default in its securities, and, when peace was restored in 1865, the Baltimore and Ohio resumed its policy of aggressive expansion.

Before very long the road, with its connections constructed or purchased, reached the cities of

Pittsburgh, Sandusky, and Chicago, and further strengthened its connections with Cincinnati and St. Louis. It acquired steamboats, grain elevators, and docks; it constructed hotels as mountain summer resorts; it built dry docks in Baltimore; and finally it proceeded to organize and operate an express company, a telegraph company, and a sleeping-car company. To carry out these ambitious plans the capital stock and debt were of course increased again and again, and in the course of these operations a large part of the new securities issued was sold to English investors. Notwithstanding these great increases in liabilities, the company continued to report large surpluses and to pay large dividends, — generally ten per cent annually. In fact, this liberal rate was, with brief exceptions, paid right through the Civil War period, in spite of the fact that large parts of the line were frequently destroyed and traffic was often at a standstill. With such prosperity under such conditions Garrett's reputation as a railroad manager naturally suffered no eclipse.

In the course of the Civil War, as already noted, through traffic routes from New York to Chicago had been established, and in the succeeding years the consolidations of the great competing systems

into trunk lines had taken place. The struggle of the Baltimore and Ohio for its share of Western business led to fierce rivalry with the Pennsylvania. This competition became so severe and intense that, in 1874, the Pennsylvania road refused to carry the Baltimore and Ohio cars over its line to New York on any terms whatever. Since this was the only way in which the Baltimore and Ohio could reach New York, the situation was a serious one. Garrett retaliated by making destructive reductions in passenger rates from Washington and Baltimore to Western points. The cuts were soon made on other roads and affected both freight and passengers. All the lines became involved. Passenger fares from Chicago to Baltimore and Washington were reduced from nineteen dollars to nine dollars, and those to New York and Boston from twenty-two to fifteen dollars. Still the fight continued, and before the end of 1875 it was possible to travel from Chicago to New York first class for twelve dollars and to ship grain to New York for as low a rate as twelve cents.

Despite the fact that competition had cut earnings almost to the point of extinction, the Baltimore and Ohio continued to report surprisingly good profits. The company borrowed additional

funds from time to time but continued to pay the liberal ten per cent dividend until 1877, when it somewhat reduced the rate. These dividend payments indicated, however, a prosperity that was only apparent, and they did not greatly deceive the bankers, for the credit of the Baltimore and Ohio weakened from day to day. The fact is that the reports of operations inspired little public confidence; to the farseeing, there were danger signals ahead. Nevertheless the ten per cent dividends were resumed in 1879 and continued at this rate without interruption until 1886.

On the death of John W. Garrett in 1884, his son Robert, who succeeded him as president, continued the same policy of competition and aggression. With the object of gaining an entrance into Philadelphia and through that gateway of reaching New York, he started work on a branch from Baltimore to Philadelphia to meet, at the northern boundary of Maryland, the Baltimore and Philadelphia Railroad — a line which independent interests were then building through Delaware with the intention of obtaining an entrance into Philadelphia. The Pennsylvania interests strongly opposed Garrett's new project and many years before had gone so far, in their determination to block the Baltimore

and Ohio from acquiring control of the Philadelphia, Wilmington and Baltimore Railroad, as to purchase that road themselves. Despite this opposition the Baltimore and Ohio went forward with their plans and secured an entry into Philadelphia by acquiring control of the Schuylkill East Side Railway, which was a short terminal road of great strategic value. North of Philadelphia the company arranged a traffic contract with the Philadelphia and Reading, whose lines extended to Bound Brook, New Jersey, and also with the Central Railroad of New Jersey beyond Bound Brook to Jersey City. Afterward, by purchasing the Staten Island Rapid Transit Company the Baltimore and Ohio acquired extensive terminals at tidewater on Staten Island and constructed a connection in New Jersey with the New Jersey Central. Thus, after many years of struggle and at heavy cost, the Baltimore and Ohio finally secured an entry into the New York district independently of the Pennsylvania Railroad.

Both freight and passenger charges, however, were still maintained at an unprofitable rate, and, after the death of John W. Garrett, the credit of the Baltimore and Ohio continued to decline. Dividends were gradually reduced and by 1888 were

omitted entirely. As is usually the case, the cessation of dividends awakened the sleeping stockholders. They began an investigation to ascertain the whereabouts of that remarkable surplus which had been reported from year to year and which, according to official report, had shown a constant growth.

This investigation disclosed a startling state of affairs. Instead of a surplus, the company had been piling up deficits year after year, had been borrowing money right and left on onerous terms, had been charging up millions of dollars of expenses to capital accounts — and as a matter of fact, instead of making money, it had for the most part been losing it. Now the company urgently needed cash, and the only way it could obtain that essential commodity was by selling its express, telegraph, and sleeping-car business.

During the entire administration of John W. Garrett, extending over more than two decades, current expenditures of enormous amounts which should have been deducted from the income had been credited to the surplus; many millions which would never be returned had been advanced to subsidiary lines, or had been spent, and therefore should have been put down in the books as losses. When these facts became public, the capital stock

of the Baltimore and Ohio, which for generations had been looked upon as one of the most secure of railroad investments, dropped to almost nothing, and the most strenuous financial efforts were required to keep the company out of bankruptcy.

These disclosures, towards the end of 1887, ended the first period of active Garrett management in the Baltimore and Ohio. The directors then turned to New York bankers for the cash that was needed to put the affairs of the company on a sound basis. Samuel Spencer, who afterward became a partner in the banking house of J. P. Morgan and Company, was elected president and active manager. He introduced radical reforms, entirely revolutionized the organization, and adopted modern methods. He wrote off the books a large amount of the much vaunted "surplus" and he took important steps toward the general improvement of the property.

Had the new interests been allowed to continue their efforts unmolested, the history of the Baltimore and Ohio in the next decade might have been very different. But the original controlling interests, the Garrett family, still held the balance of power. As the bad bookkeeping and other irregularities of the past naturally reflected on the

Garretts, it was their interest to suppress further investigation as far as possible; and their antagonistic attitude toward the policy adopted by the new Spencer management was seen in the annual election of directors in November, 1888. Only five of the members of the board were reëlected, President Spencer was ousted, and Charles J. Mayer was elected in his place.

This second change in management sidetracked the plans for radical reform, and little improvement resulted either in earning power or in financial condition. The company had fallen upon evil days. The net profits did not increase, and eight years after 1888 they were smaller than in that year, while the debt and interest charges constantly grew. Despite these ominous facts, dividends were paid regularly on the preferred stock and in 1891 they were resumed on the common stock. In the latter year a twenty per cent dividend was declared "to compensate shareholders for expenditures in betterments and improvements in the physical condition of the property," while at the same time the directors decided to raise five million dollars of new capital for expenditures which would be necessary to handle the increased traffic created by the World's Fair at Chicago.

The traffic problem continued to be a thorn in the flesh and until 1893 freight rates were constantly being cut. The opening of the Baltimore and Ohio connection to New York had brought keener competition from the Pennsylvania Railroad and had made deep inroads into the Baltimore and Ohio revenues. Such conditions made even the Garrett interests feel that something should be done, and in 1890 a "community of interest" scheme was proposed. To control the stock of the Baltimore and Ohio Railroad, Edward R. Bacon in New York, acting harmoniously with the Garrett family, formed a syndicate of capitalists representing the Richmond Terminal system, the Philadelphia and Reading Railroad, the Northern Pacific Railroad, and other properties. The ultimate plan, which proved too visionary, was to consolidate under one control a vast network of lines extending all over the continent.

The syndicate had made little progress toward rehabilitation when the panic of 1893 occurred. In this year and the next the earnings of the Baltimore and Ohio fell off rapidly and the dividend was reduced. Nevertheless, as late as January, 1895, the directors insisted that financially the company was in better condition than for several

years and that on the whole it was in a stronger position than at any time since 1880. But in this same year it became necessary to stop all dividend payments; the company began to have difficulties in securing ready money; and before the close of the year the situation seemed hopeless. Early in 1896 Mayer tendered his resignation, and John K. Cowan succeeded him. The new president did his utmost to obtain money to meet the current needs, but he was unsuccessful. A receivership and reorganization seemed absolutely necessary, and in February, 1896, the receivership was announced.

With the property now in the hands of the courts, the opportunity at last came to make real the reforms which had been proposed and begun nearly a decade earlier under the wise but quickly terminated administration of Samuel Spencer. A thorough housecleaning was now carried through without interference or interruption. A reorganization committee was formed, with whom were deposited the Garrett shares as well as those of the Morgan and New York and Philadelphia interests. A full investigation of past management disclosed that the records for the interim extending from the brief Morgan control under Spencer to the

receivership contained the same kind of irregularities and errors of policy that had prevailed under the earlier Garrett management. Statements of profits had been swelled by arbitrary entries in the books and nearly six million dollars which had not been earned had been paid out in dividends. Furthermore the company had endorsed the notes of certain subsidiary roads to the extent of over five million dollars, and had made no record whatever of this action for the stockholders.

As in the case of numerous other railroads, the financial breakdown of the Baltimore and Ohio Railroad was primarily due to a bad or reckless financial policy, for there was nothing inherently insecure in the railroad property itself. During all the years of the Garrett régime, the company had shared in the general growth and expansion of industry, wealth, and population within its territory. It had been progressive in matters of expansion and had built up its system to meet the needs of modern times. Its trackage and equipment compared favorably with similar systems, and most of its extensions and branches had been wisely planned and had proved profitable. The operating management of the railroad was generally good and it usually secured its proportion of

what business was to be obtained. But the steady increase in its debts over a number of years, its extravagance in dividend payments, and its painful efforts to keep down its operating expenses had so weakened the property that, when the hard times of 1893 to 1896 arrived, it was in no position to weather the storm. The only wonder is that the management succeeded in keeping the system intact and apparently solvent so long as it did.

The receivership at once adopted a vigorous policy of improvement. The rolling stock had run down until it could not handle even ordinary business. While the company had been depleting its credit and paying out all its cash in dividends, the equipment had been going into the scrap heap. For two years the receivers made large expenditures on equipment and roadbed, borrowing money for this purpose; the result was that when, in 1898, the courts surrendered the property, it was in splendid condition to take advantage of the tide of commercial and industrial prosperity which was just then beginning to flow throughout the United States.

While the reorganization of the Baltimore and Ohio was not so drastic as that of many other systems which went through the courts during this period, it was thorough enough to meet the

situation. The fixed charges were cut down radically and the stockholders were assessed in large amounts. In all, more than thirty-six million dollars was raised by assessments and the sale of new securities; the liabilities of the Company were greatly reduced; and its credit was promptly restored. Formerly the Baltimore and Ohio had been struggling under a burden of floating indebtedness, with so little money in its treasury that it could not even put a new coat of paint on the passenger cars and had to continue to use oil lamps to light some of its best trains. But now the floating debt was replaced by a large available cash capital, and as a result of the liberal policy followed by the receivers, the equipment and roadbed were brought fully up to the standards required for handling the traffic of the road both economically and effectively.

With the reorganization of 1898 finished, the Baltimore and Ohio Railroad entered a new period in its history. The strong, progressive interests which now took control concentrated their energies on developing traffic, increasing earnings, and rounding out the general system. They adopted careful measures for unifying the system by adding other lines and connections of value; they paid

much attention to the improvement and development of terminals; and they spent many millions in acquiring and expanding the terminal properties of the company at Chicago, St. Louis, Philadelphia, and Baltimore.

The financial history of the Baltimore and Ohio since the close of the nineteenth century is interesting chiefly in connection with changes in the control of the property. After the reorganization a group of prominent financiers, including Marshall Field, Philip D. Armour, Norman B. Ream, and James J. Hill jointly purchased a large interest in the stock. But this purchase, while perhaps representing a dominating interest, did not involve actual control. Soon afterward, interests identified with the Pennsylvania Railroad began to appear in the Baltimore and Ohio, and before long the Pennsylvania had a strong representation on the board. As a consequence, the Baltimore and Ohio almost lost its individuality and for a time was popularly regarded practically as a subsidiary of its old rival line.

The purpose of the Pennsylvania in obtaining this ascendency over the Baltimore and Ohio was to regulate the soft coal traffic. Already it had acquired dominating interests in the Chesapeake and

Ohio, the Norfolk and Western, and other soft coal properties. These purchases were merely manifestations of that "community of interest" policy which at this time led several large systems to acquire interests in competing lines. Several of the railroad leaders of that time, notably James J. Hill and Edward H. Harriman, believed that if these great systems actually owned large blocks of stock in each other's properties, this common association would *ipso facto* end the competition that, if continued, would ultimately ruin them all. The Supreme Court had decided that the "pooling" arrangements which had so long prevailed among great competing roads violated the Sherman Anti-Trust Act; and the American public, which now was cultivating a new interest in railroad problems, believed that the "community of interest" plan was merely a scheme to defeat the Interstate Commerce Act and the Sherman Act and to maintain secretly all the old railroad abuses. These inter-railroad purchases therefore became so unpopular that the Pennsylvania sold its Baltimore and Ohio stock. At this time Edward H. Harriman of the Union Pacific, who had at his disposal vast funds of the latter property which he had obtained by the settlement of the Great Northern

and Northern Pacific deal, decided to acquire control of a system of roads in the East in order to establish a complete transcontinental line in the interest of the Union Pacific. It was the theory that such a purchase by the Union Pacific would not defy the law or outrage the popular conscience because the Union Pacific, unlike the Pennsylvania, did not compete with the Baltimore and Ohio, but was only a western extension of that system. Harriman in August, 1906, therefore purchased nearly all the Pennsylvania holdings in the old Garrett property and thus obtained virtual control.

At this same time the Baltimore and Ohio had been developing a "community of interest" plan on its own account. In the year 1903, it acquired a substantial stock interest in the newly reorganized Reading Company, which controlled the Philadelphia and Reading Railroad and the Philadelphia and Reading Coal and Iron Company. It did not obtain a majority interest but, with the Lake Shore and Michigan Southern Railroad of the New York Central system, it now controlled the Reading system. The Reading Company meanwhile had secured control of the Central Railroad of New Jersey, over the lines of which the Baltimore and Ohio reached New York City.

In the following years the Baltimore and Ohio property was still further rounded out by purchasing the Cincinnati, Hamilton and Dayton, a small system of doubtful value radiating through the State of Ohio and, by additional extensions, into the soft coal fields of West Virginia. New energy was put into the expansion and improvement of the southwestern lines to St. Louis, while the eastern terminal properties were still further improved.

The practical control of the Baltimore and Ohio remained in the hands of the Union Pacific interests until 1913. In that year, however, the Union Pacific liquidated its holdings by distributing them to its own individual stockholders in the shape of a special dividend. The Baltimore and Ohio thus became once more an independent property.

The story of the Baltimore and Ohio for the past decade has been mainly a record of a growing, well-managed, and efficient business. It is closely identified with the personality of its notable and efficient president, Daniel Willard, a conspicuous example of the modern type of railroad manager. In the earlier days of railroading, and especially in the long period which came to an end with the death of Harriman, the typical railroad

president was usually a man of great wealth who had secured his position by owning a large financial interest in the property. The country was full of "Wall Street Railroad Generals." But in recent years the efficient railroad head has come more and more to be the practical railroad man who has risen from the ranks, who has no important personal financial interest in the property but who is paid an adequate salary to operate a system in a purely businesslike way. Notable examples of this modern type of railroad president are, besides Daniel Willard, Edward P. Ripley of the Atchison, Topeka and Santa Fé, Benjamin F. Bush of the Missouri Pacific, and Fairfax Harrison of the Southern.

The efficient management of today is abundantly shown in the recent record of the Baltimore and Ohio. President Willard has been unmolested by financial interests and has been continuously backed up in his policies by the owners of the road. As a result the Baltimore and Ohio of the present decade has reached an enviable position as one of the great Eastern trunk lines, comparing well with other progressive properties like the Pennsylvania, the New York Central, the Southern, the Illinois Central, and the Louisville and Nashville. Mil-

lions have been poured into the property in the past fifteen years; its main lines have been largely rebuilt; its rolling stock is chiefly of the most modern types; and its terminals and structures are such as modern conditions demand.

CHAPTER VI

LINKING THE OCEANS

In 1862, when the charter was granted by the United States Government for the construction of a railroad from Omaha to the Pacific coast, the only States west of the Mississippi Valley in which any railroad construction of importance existed were Iowa and Missouri. During the three decades which had passed since the first railroad construction, the earlier methods of transportation by boat, canal, and stage coach gave place in the Eastern half of the United States to more modern methods of transportation. As a result of these new conditions, the States, cities, and towns were welded together, and population and prosperity increased rapidly in those inland sections which had formerly languished because they had no means of easy and rapid communication.

The construction of extensive railways, however, and particularly the consolidation of small,

experimental lines into large systems, dates from the days of the discovery of gold in California. The nation did not begin to realize the extraordinary possibilities of the vast Western territory until its attention was thus suddenly and definitely concentrated on the Pacific by the annual addition of over fifty million dollars to the circulating medium. The wealth drawn so copiously from this Western part of our continent had a stimulating effect on the commerce, manufactures, and trade of the entire Eastern section. People began to understand that with the acquisition of California the nation had obtained practically half a continent, of which the future possibilities were almost unlimited, so far as the development of natural resources and the general production of wealth were concerned.

The public conviction that a railroad linking the West and the East was an absolute necessity became so pronounced after the gold discoveries of '49 that Congress passed an act in 1853 providing for a survey of several lines from the Mississippi to the Pacific. Though the published reports of these surveys threw a flood of light on the interior of the continent, they led to no definite result at the time because the rivalry of sections

and groups of interests for the selection of this or that route held up all progress.

The Act of 1862, which created the Union Pacific Railroad Company, together with the amending Act of 1864, authorized the construction of a main line from an initial point "on the one hundredth meridian of longitude," in the Territory of Nebraska to the eastern boundary of California, with branch lines to be constructed by other companies and to radiate from this initial point to Sioux City, to Omaha, to St. Joseph, to Leavenworth, and to Kansas City.[1] Provision was made for a subsidy of $16,000 a mile for the level country east of the Rocky Mountains; $48,000 a mile for the lines through mountain ranges; and $32,000 a mile for the section between the ranges. The original plan to secure the government subsidies by a first mortgage on the lines was amended so as to allow private capital to take the first mortgage, the Government taking a second lien for its advances. In addition to these subsidies the several companies were to receive land grants of 12,800 acres to the mile in alternate sections contiguous to their lines. Upon the same terms the Central

[1] These ambitious designs were never fully realized. The main line ran eventually west from Omaha, meeting the Sioux City branch at

Pacific, a company incorporated under the laws of California, was authorized to construct a line from the Pacific coast, at or near San Francisco, to meet the Union Pacific Railroad.

The public was quick to realize the significance of this huge enterprise, for the papers of the day were full of such comments as the following:

> It is useless to enlarge upon the value and importance of this great work. It concerns, not the United States alone, but all mankind. Its line is coincident with the natural and convenient route of commerce for the world. . . . Over it the trip will be made from London to Hong Kong in forty days, over a route possessing every comfort and attraction, which takes a continent in its course, and which, from the variety and magnitude of its sources, from the race which now dominates it, and from the extent of their numbers, wealth and productions, must soon give law to the commercial world.

Notwithstanding these and similarly optimistic sentiments, the meager financial support given to the enterprise by the public at large had been very discouraging. Although the construction had been liberally subsidized by the Government, gross extravagance had promptly crept in; juggling of accounts for the purpose of securing profits on the

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Frémont. The only other branch which was constructed to connect with the Union Pacific was that from Kansas City and it ran first to Denver.

government advances was freely indulged in, and after only a small section of the line had been completed it was announced that more capital must be forthcoming or the work would cease. Out of this situation grew the plan for subletting the work to a construction company known as the Pennsylvania Fiscal Agency — a name which was afterwards changed to that of the Crédit Mobilier of America. The story of the Crédit Mobilier, with its irregularities involving conspicuous politicians, is one of the most disgraceful in American history. The detailed history of these operations need not be considered here; it is sufficient to say that finally, in spite of political scandals, the Union Pacific lines were brought to completion. Within two years after the letting of the contracts to this new company, in 1866, over five hundred miles of road were completed and in operation. An advertisement published late in 1868 announced that "five hundred and forty miles of the Union Pacific Railroad, running west from Omaha across the continent, are now completed, the track being laid and trains running within ten miles of the Rocky Mountains. . . . The prospect that the whole grand line to the Pacific will be completed by 1870 was never better."

As a matter of fact, the line through to the coast was finished earlier than had been predicted. One fact which increased the rapidity of construction was the growing financial difficulty of the company. It was absolutely imperative that the through line be completed in order that the resulting business might make the operation of trains pay. But aside from this, another influence was at work to encourage rapid construction. The Act of 1862 provided that the Central Pacific might also build across Nevada to meet the Union Pacific, on condition that it completed its own allotted section first. As the Central Pacific also was receiving a heavy government subsidy per mile, and as there was great profit in construction undertaken with this government subsidy, there was naturally a strong incentive for both companies to build all the mileage possible and as rapidly as possible.

The Central Pacific enterprise was backed by a group of men who were awake to the possibilities of the situation and who had made large fortunes in the gold-mining boom of previous years, such as Leland Stanford, Collis P. Huntington, Mark Hopkins, and the Crockers. The rivalry between them and the Union Pacific interests woke the whole continent and formed a chapter in

American railroad history as startling and romantic as anything in the stories of the Vanderbilts and Goulds with their financial gymnastics.

As the contest proceeded, public interest increased and the entire country watched to see which company would win the big government subsidies through the mountains. Through the winter of 1868 the work continued on the Union Pacific with unabated energy, and freezing weather caught the builders at the base of the Wasatch Mountains; but blizzards could not stop them. The workmen laid tracks across the Wasatch on a bed of snow and ice, and one of the track-laying trains slid bodily, track and all, off the ice into a stream. The two companies had over twenty thousand men at work that winter. Suddenly the Central Pacific surprised the Eastern builders by filing a map and plans for building as far as Echo, some distance east of Ogden. The Union Pacific forces, however, were equal to the occasion. At first, one mile a day had been considered rapid construction, but now, even with the limited daylight of the winter months, they were laying over two miles a day, and they finally crowned their efforts by laying in one day between sunrise and sunset nearly eight miles of track.

In the meantime the Central Pacific also had stopped at nothing. The company had a dozen tunnels to build but did not wait to finish them. Supplies were hauled over the Sierras, and the work was pushed ahead regardless of expense. On May 10, 1869, the junction was formed, the opposing track layers meeting at Promontory Point, five miles west of Ogden, Utah. Spikes of gold and silver were driven into the joining tracks, and the through line from the Missouri River to the Pacific Ocean had been completed; the first engine from the Pacific coast faced the first engine from the Atlantic. The whole country, from President Grant in the White House to the newsboy who sold extras, celebrated this achievement. Chicago held a parade several miles long; in New York City the chimes of Trinity were rung; and in Philadelphia the old Liberty Bell in Independence Hall was tolled again.

The cost of the Union Pacific Railroad from Omaha to its junction with the Central Pacific formed a subject of controversy for a generation. The saving of six months of the allotted time for completing the road no doubt increased its cost to the builders, for at times they borrowed money in the East at rates as high as 18 and 19 per cent.

Besides, in pushing the line far beyond the bounds of civilization without waiting for the slower pace of the settler and the security which his protection afforded, it often became necessary for half the total number of workmen to stand guard and thus reduce the working capacity of the construction force. Even so, hundreds were killed by the Indians. Governmental restrictions of various kinds also increased the cost of the road. For example, the stipulation that only American iron should be used increased the cost by at least ten dollars for every ton of rail laid. The requirement that a cut should be made through each rise in the Laramie plains, thus giving the track a dead level instead of conforming to the natural roll of the country, ultimately resulted in a waste of from five to ten million dollars. Extraordinary costs such as these, combined with the extravagant methods of construction and financing, brought the total cost of the property up to what was in those days a fabulous sum of money. The records indicate that the profits which accrued through the Crédit Mobilier and in other ways in the construction up to the time of the opening in 1869 exceeded fifty millions of dollars.

While the Union Pacific was being built, from

1862 to 1869, other railroads were not idle, and many were rapidly reaching out into the Central West. Not only had the Chicago and North Western reached Omaha and made connection with the Union Pacific, but the Kansas Pacific had penetrated as far west as Denver and had joined the Union Pacific at Cheyenne.

The close relationship between railroad expansion and the general development and prosperity of the country is nowhere brought more distinctly into relief than in connection with the construction of the Pacific railroads. With the opening of a transcontinental line the vast El Dorado of the West was laid practically at the doorstep of Eastern capital. Not only did American pioneers turn definitely toward the West, but foreign emigrants bent their steps in vast numbers in that direction, and capital in steadily increasing amounts made its way there. Towns sprang up everywhere and soon developed into busy centers of trade and commerce. Caravan trains, which a few years before had followed a single westward line, now started from points along the railroad artery and penetrated far to the north and south. The settlers knew that the time was not far distant when all the vast territory west of the

Missouri, from the Canadian border to the Rio Grande, would be reached by the rapid spread of the railroad. In the sixties and seventies there sprang up and rapidly developed in size and importance such centers as Kansas City, Sioux City, Denver, Salt Lake City, Cheyenne, Atchison, Topeka, Helena, Portland, Seattle, Duluth, St. Paul, Minneapolis, and scores of smaller places. The entire Pacific slope was soon dotted with towns and cities, and even the great arid plains of the West — as well as the "Great American Desert" covering Utah, Arizona, New Mexico, and parts of Nevada — began to take on signs of life which had not been dreamed of a decade before.

But the development of this great section of the country during the next few years was even more notable. By 1880 four different lines of railroad were running through to the Pacific States, and a fifth, the Denver and Rio Grande, had penetrated through the mountains of Colorado and across Utah to the Great Salt Lake. These were the years when the modern industrial era was really beginning. Man's viewpoint was changing, and instead of remaining content with the material achievements of the Atlantic and Central sections of the continent, he began to realize that the

vast Western regions and the thousand miles of Pacific coast line were destined to be America's inexhaustible patrimony for the years to come.

In 1880 the Union Pacific began its expansion to the eastward and acquired control of the Kansas Pacific, which had come upon evil days, and of the Denver Pacific, a most important connecting link. In January, 1880, these two companies were absorbed by the Union Pacific, which thus obtained a continuous line from St. Louis westward. In the meantime the Central Pacific, operating from Ogden west to the coast, had added many branches, while a new company — known as the Southern Pacific Railroad of California — had for some years been constructing a system of lines throughout that State south of the Central Pacific and by 1877 had penetrated to Yuma, Arizona, 727 miles southeast of San Francisco. It had also built lines into Arizona and New Mexico and soon joined the Santa Fé route, which had for some time been working westward.

During 1881 the Southern Pacific continued its eastern extensions along the Rio Grande to El Paso, Texas, where it formed a connection with a new road under construction from New Orleans. A junction was also made at El Paso with the

Mexican Central, which was under construction to the City of Mexico. The Southern Pacific Railroad was closely allied with the Central Pacific interests headed by Collis P. Huntington, and in 1884 the great Southern Pacific Company was formed, which acquired stock control of the entire aggregation of railroads in the South and Southwest. At the same time the Central Pacific came under direct control of the Southern Pacific through a long lease.

During these eventful years, while the Southern Pacific properties were penetrating eastward through the broad stretches of country to the south of the Union Pacific lines, equally interesting events were occurring in the north. In 1879 a consolidation was formed of the Oregon Steamship and Navigation Company with several short railway lines in Oregon and Washington, under the name of the Oregon Railway and Navigation Company. These railroad lines extended east from Portland to the Oregon state line, and north to Spokane, and they finally made connection with the new Northern Pacific. At the same time, another road, known as the Oregon Short Line Railroad, was built from Granger, Wyoming, on the line of the Union Pacific to a junction with

the Oregon Railway and Navigation Company at Huntington, Oregon, on the Snake River. The Oregon Short Line came under the control of the Union Pacific and was opened for traffic in 1881. Later a close alliance was made with Henry Villard, the controlling spirit in the Oregon Railway and Navigation Company. Ultimately the entire system of Oregon lines passed under Union Pacific control, to be lost in the receivership of 1893, but later recovered under the Harriman régime.

When, after ten more years of expansion, the great Union Pacific property went into the hands of receivers in 1893, it had grown to a system of more than 8000 miles. It completely controlled the Oregon railway and steamship lines, the lines to St. Louis, and also an important extension known as the Union Pacific, Denver and Gulf Railroad, running from a point in Wyoming across Colorado to Fort Worth, Texas. The financial failure of the system was due to a variety of causes. Its management had been extravagant and inefficient, and construction and expansion had been too rapid. The policy of building expensive branch lines where they were not needed and of obligating the parent company to finance them had been a grievous mistake and had contributed largely to

the downfall of the company. Further than this, the credit of the Union Pacific was steadily growing weaker because the time was drawing near when its heavy debt to the United States Government would fall due. In all its history of more than twenty years the company had never paid any interest on the government debt nor had it maintained a sinking fund to meet the principal when due. Consequently, the accruing interest had mounted year by year and, should the Government enforce payment at maturity in 1897–99, the company would be doomed to bankruptcy. This government debt, including accrued interest, amounted to the sum of $54,000,000.

Attention should not, however, be diverted from the fact that during all these years a vast expansion of competitive lines had been going on far southward of the Union Pacific. Under the guiding genius of Collis P. Huntington, the Southern Pacific Company in 1884 had consolidated and solidified a gigantic system of railways extending from New Orleans to the Pacific and throughout the entire State of California to Portland, Oregon, with branch lines radiating through Texas and making close connection with roads entering St. Louis. In addition to these railroads, Huntington

acquired control of a steamship line operating from New York to New Orleans and Galveston, and subsequently of the Pacific Mail Steamship Company, operating along the coast from Oregon south to the Isthmus of Panama and across the Pacific Ocean. The ever-growing effects of this powerful and well-managed competitor — combined with the large development of the Santa Fé system during these years, the competition of the completed Northern Pacific, and the possibilities of the new Great Northern Railway or Hill line, now completing its main artery to the Pacific — were far-reaching enough in themselves to bring the Union Pacific upon evil days. Consequently few were surprised when, under the great pressure of the panic of 1893, the property was forced to confess insolvency. The Union Pacific had simply repeated the story of most American railroads; it had been constructed in advance of population and had to pay the penalty. Yet it had more than justified the hopes of the daring spirits who projected it. It may have made individuals bankrupt, but it magnificently fulfilled the part which it was expected to play. It had opened up millions of acres to cultivation, given homesteads to millions of people, many of whom were immigrants

from Europe, developed mineral lands of incalculable value, created several new great States, and made the American nation a unified whole. Its subsequent history belongs to another chapter of this story — a history that is richer than the first in the matter of financial success but that can never surpass the early pioneering years in real and permanent achievement.

CHAPTER VII

PENETRATING THE PACIFIC NORTHWEST

It is only when one reads such a book as Francis Parkman's *Oregon Trail* that one fully realizes the vast transformation which has taken place within little more than half a century in the great Northwestern territory beyond the Mississippi and the Missouri. In that fascinating history we read of the romantic and thrilling experiences of Parkman and his companions in their summer journey across the plains of Nebraska and through the mountain ranges of Wyoming, Montana, and Oregon. We read of their hairbreadth escapes from the Indians; their chase of the buffalo and other wild animals of the far Western country; of the wearisome weeks that they spent in crossing the deserts where absolute loneliness reigned; and finally of their arrival, after months of hardship, in the vast Oregon country, which with its great natural resources, splendid climate, and large extent has come to be

known in these modern days as the Empire of the Northwest.

It was to penetrate and bring this great virgin region within reach of the East that the Northern Pacific Railroad Company was chartered by Congress in 1864, just prior to the closing of the Civil War. During this same period the Union Pacific route was being surveyed, and the first ground was broken in December, 1863, for the line which was later to connect Omaha with San Francisco.

Like the Union Pacific charter, that of the Northern Pacific also contained an extensive land grant. From the modern viewpoint, such land grants look colossal, but in those days the general opening up and development of the Western country had progressed to so slight an extent that the significance of giving away millions of acres of the public lands to encourage a precarious railroad enterprise was then no more than the passing over to capitalists today of exclusive rights in extensive tracts of territory in Brazil and the other South American Republics. Even these great opportunities to acquire almost an empire of fertile lands or rich forests were not as a rule looked upon as attractive enough to tempt capital into the wilderness. The old saying that capital is the most

timid thing in the world and does not like pioneering is strongly emphasized by such instances as this, and no doubt in 1864 the enormous grants of free land made by Congress did not appear especially attractive to the man who had money to invest.

Whatever the public attitude may have been, the Act of Congress of July 2, 1864, creating the Northern Pacific Railroad, gave that Company the right to construct a line from some point on Lake Superior, either in Minnesota or in Wisconsin, westward and north of latitude 45°, to or near Portland, Oregon. The land grant consisted of forty alternate sections of public land for each mile within the Territories penetrated and twenty alternate sections within the States through which the railroad might pass.

The hazardous character of this undertaking will be realized when it is remembered that at this time no railroad had yet penetrated the Rocky Mountains; that the entire railroad system of the United States was less than 40,000 miles; and that west of the Mississippi there was no mileage worth mentioning. It was still less than a generation since Parkman and his companions had made their four months' journey from St. Louis to the

mouth of the Columbia River, and between the fringe of civilization along the Pacific slope and the region about Chicago and St. Louis lay almost a third of the continent uninhabited, undeveloped, and unknown. The scheme languished for several years until finally, in 1869, the firm of Jay Cooke and Company of Philadelphia undertook to raise the necessary capital.

The story of the Northern Pacific for the next few years was closely bound up with that of Jay Cooke, who was one of the most conspicuous characters of his time in the financial world. He was a man of commanding personality, great energy, unusual resourcefulness, and with a large personal following. He had built his reputation through his great success in financing United States government loans during the Civil War. He now undertook to raise more than one hundred million dollars to carry through the Northern Pacific enterprise. He achieved remarkable success for a time and within three years had built over five hundred miles of the main line to the Pacific coast. But the outbreak of the Franco-Prussian War and the consequent financial stringency abroad, the difficulty of marketing bonds on an uncompleted enterprise, combined with the poor showing made

by those sections of the line completed and in operation, brought matters to a crisis, and in September, 1873, Jay Cooke and Company were obliged to close their doors. The affairs of the railroad were so closely involved with those of the banking firm that, although strenuous efforts were adopted to save the railroad, its revenues were inadequate. As a result, in April, 1874, General Lewis Cass was appointed receiver.

The uncompleted property was operated for some years thereafter under the protection of the courts and no plan of reorganization was devised until 1879. During the receivership only a moderate amount of additional mileage was constructed, and it was not until many years had passed that the system penetrated the mountains and reached the Pacific coast. But when the new company took possession in 1879, aggressive building was resumed, and for a time it looked as though the project would be promptly finished. However, in 1882, the company still had about one thousand miles to construct in order to complete its main artery. At this time financial difficulties appeared, and the days of stress were tided over only by the help of a syndicate and the Oregon and Transcontinental Company.

With the formation of the Oregon and Transcontinental Company begins the régime of Henry Villard, the dominating factor in Northern Pacific affairs for many years afterward. Some years before, Villard, who had long been interested in Western railroad enterprises and who had become prominent through his activities in connection with the Kansas and Pacific Railway, had succeeded in forming the Oregon Railway and Navigation Company as a combination of steamboat lines operating on the Willamette and Columbia rivers in Oregon, with an ocean line connecting Portland and San Francisco. A connecting railroad line, which had been built to Walla Walla in southeastern Washington, penetrated a portion of the territory through which the Northern Pacific was projected. In 1880 a contract was arranged between the two companies whereby the Oregon Railway and Navigation Company, in order to share in the traffic, undertook to construct a line eastward to meet the Northern Pacific line at the mouth of the Snake River. This arrangement would allow the Northern Pacific to run its trains into Portland and would obviate the necessity of constructing its own road into that city.

In spite of this arrangement, Villard feared that

the Northern Pacific Company might decide, after all, to build its own line to Portland as soon as it was able to finance the project. It was for the purpose of preventing this move that he formed the Oregon and Transcontinental Company, a holding corporation which promptly acquired, in the open market and by private purchases, a dominating interest in the Northern Pacific Railroad. At the same time Villard placed the control of the Oregon Railroad and Navigation Company in the hands of the new Transcontinental.

Villard thus came to control the entire Northern Pacific system and, backed by the Deutsche Bank of Berlin and other German and Dutch interests, at once began an aggressive policy of expansion and development. The business of the system developed rapidly. The main line through to the Pacific coast was now in operation, and the entire system amounted to about 2300 miles of road. But Villard followed a financial policy which was not sound and paid dividends without justification. In a short time the company consequently found itself financially embarrassed.

As a result of financial losses in 1884, Villard was obliged to retire from active control of the properties. But in 1887 he once more got possession

of the Northern Pacific with German capital and succeeded in arranging a lease of the Oregon Short Line, which had been developed by the Union Pacific interests, embracing a cross-country road from its main lines in Wyoming northward into Oregon and Washington. At the same time the interest of the Transcontinental Company in the Oregon Railway and Navigation Company was linked with the Oregon Short Line Company. These transactions, however, still left the Transcontinental Company in control of the situation, as it retained its majority ownership of Northern Pacific Railroad stock.

For the next few years the Northern Pacific did not follow a policy of rapid expansion. Other trunk lines, such as the Union Pacific, Rock Island, Santa Fé, Burlington, and North Western, were all growing and keeping pace with the rapid settlement of the West; but the Northern Pacific in these years simply rested content with its position as a single track transcontinental route having but few branches. Its only important extension was made by acquiring the Wisconsin Central Railroad, which gave the company a line between St. Paul and Chicago and a valuable and important entrance into the latter city. It was expected that.

with this accession, the affairs of the company would be permanently established on a sound basis, but the overliberal policy of paying out practically all the surplus in dividends was continued in the face of large increases in fixed charges.

Early in 1892 it began to be rumored that the Northern Pacific was not in so easy a financial position as had been assumed. The stockholders took alarm; and the committee which was appointed to investigate the situation discovered a deplorable state of affairs. As a result of the severe criticism of Villard's policy, steps were at once taken to oust him from control, but without success until June, 1893. Two months later, receivers were appointed who discovered that the company was insolvent and had no funds to pay quickly maturing obligations. Receivers were appointed also for most of the branch lines, including the Wisconsin Central system. The Oregon Short Line, which was tied through guarantees with the Union Pacific although leased to the Northern Pacific, was involved in the general crash but was later separately reorganized.

To rehabilitate the Northern Pacific Railroad effectively was a difficult problem. Its debt was enormous; its roadbed and rolling stock had been

neglected; and, as a result of the recent crash, its valuable feeders on both east and west, the Wisconsin Central and the Oregon properties, were removed from its control. Besides these adverse conditions, competition of a serious nature was looming up. James J. Hill had for many years been quietly developing the Great Northern Railway. This great system he had financed in an extremely conservative manner; he had extended it through territory where construction costs were low; and he had secured control of branches and feeders which might have come under the sway of the Northern Pacific had that company been more farsighted. Hill had operated his road from the beginning at very low cost; he had kept its credit high; and even in the period of financial depression he had reported large profits and had paid substantial dividends on his stock. With such a competitor in the field, it really looked for a while as though the Northern Pacific could have no future whatever.

Finally, in May, 1895, a plan sponsored by Edward D. Adams, representing New York interests and those of the Deutsche Bank of Berlin, proposed a practical merger with the Great Northern Railroad Company: the old stock and bondholders were to make all the sacrifices and to supply

all the new capital, and the Great Northern was then to be presented with half the stock of the new company, in consideration for which it was to guarantee the new Northern Pacific bonds. The situation was somewhat similar to that which existed in New York State as early as 1868 when Commodore Vanderbilt had achieved his great reputation as a wizard at railroading by acquiring the Harlem and Hudson River railroads and by forcing the New York Central lines to terms. James J. Hill had become a modern wizard, and the only hope for the Northern Pacific seemed to be to lay the road at his feet and ask him to do with it what he had done with the Great Northern — make it a "gold mine."

This plan, however, met with too much opposition and was abandoned. During the following year a new plan, backed by both the American and the German interests, secured the strong cooperation and endorsement of J. P. Morgan and Company. This was the first instance of Morgan's entry into railroad reorganization in the West. During the previous few years he had been increasing his reputation as a reorganizer of Eastern railroad properties, and by this time he had successfully organized or was rehabilitating the Erie, the

Reading, the Baltimore and Ohio, the Southern, and the Hocking Valley systems. But he had kept clear of the far Western field and had definitely refused to reorganize the Union Pacific on the ground that its territory was too sparsely settled and that there was little hope for its future, especially as its partial control by the United States Government made any reorganization extremely difficult. The new plan for the Northern Pacific was carried out with no regard to the Hill interests: the old stockholders were heavily assessed; all bondholders were forced to make sacrifices; the Wisconsin Central lines were entirely eliminated and separately reorganized; and the Oregon lines were dissociated from the Northern Pacific and afterwards returned to the control of the new Union Pacific.

While the new Northern Pacific as reorganized in 1898 came directly under Morgan's control and was immediately classed as a Morgan property, it did not remain exclusively such for very long. In the promotion and development of the Great Northern system, Hill had hitherto maintained an independent position so far as banking alliances were concerned, but he now began to develop closer relations with the Morgans and became

heavily interested in the First National Bank of New York, an institution which for many years had been more or less directly identified with the Morgan interests. On more than one occasion thereafter the banking firm of J. P. Morgan and Company acted as financial agent for the Great Northern.

Soon after the reorganization of the Northern Pacific, it became known that Hill had acquired an important interest in the property, and as time went on this interest was substantially increased. Within a year or two the Northern Pacific began to be classed as one of the Hill lines. With a substantial Hill representation on the board of directors and a managerial policy which was clearly inspired by Hill, the company now entered upon a new stage in its career.

The outstanding dramatic event in the story of the modern Northern Pacific was the famous corner which occurred in the spring of 1901 as a result of a contest between the Hill and the Harriman interests for the control of the property. The details of this operation, which sent the price of Northern Pacific stock up to $1000 a share and precipitated a stock-market panic, form part of the story of the Harriman lines. The contest resulted

in the formation of the Northern Securities Company, a corporation of $400,000,000 capital, devised as a holding company under the joint control of the Hill and Harriman interests, for the purpose of retaining a majority of the stocks of the Northern Pacific and the Great Northern.

The Hill interests, jointly with the Morgan control of the Northern Pacific, had been quietly accumulating stock in the Chicago, Burlington and Quincy Railroad, and Harriman felt that there was grave danger to the Union Pacific in this move, as the Burlington had already penetrated into the Union Pacific territory and might at any time start to build through to the coast its own line parallel to the Union Pacific. Harriman consequently began to buy up Northern Pacific stock in the open market and thus, together with the efforts of the Hill and Morgan people to retain and strengthen their control, brought about the corner.

The Northern Securities Company was designed to harmonize all interests and to keep the control of the Burlington property jointly in the hands of Harriman and Hill. But as the result of a suit under the Sherman Anti-Trust Act, this combination was declared illegal, and in 1904 the company was

dissolved. The final outcome of the situation was that the Northern Pacific, sharing with the Great Northern the joint control of the Burlington lines, was left indisputably in the hands of the Hill-Morgan group, where it has ever since remained. These three great railroad systems, the Northern Pacific, the Great Northern, and the Chicago, Burlington and Quincy, constituting nearly twenty thousand miles of railroad, have been known ever since as Hill lines.

Since the dramatic days of the Harriman-Hill contest the history of the Northern Pacific system has been simply a striking reflection of the growth in population and wealth of the great Northwest. The States through which it operates have grown with astounding rapidity during the past two decades; small cities have spread into great centers of manufacture and trade; hundreds of smaller towns have sprung up; natural resources of untold value have been developed. In the meanwhile the Northern Pacific has forged ahead in its earnings and profits, and the stock of the road has come to be known as one of the highest class of investment issues. Although new competition appeared, in both the local and the through business of the company — notably by the extension of the St. Paul system

largely through Northern Pacific territory to the Puget Sound region — the superior modern business management of James J. Hill, backed by the strong resources of the Morgan banking interests, made the Northern Pacific one of the standard railroad systems of America.

CHAPTER VIII

BUILDING ALONG THE SANTA FÉ TRAIL

THE Santa Fé Route, or the Atchison, Topeka and Santa Fé Railroad, which has in modern times developed into one of the largest and most profitable railroad systems in this country, was projected long before the idea of a transcontinental line to the Pacific coast had taken full possession of men's minds. As early as 1858 a plan was worked out for the construction of a line of about forty miles within the State of Kansas to connect what were then the obscure and unimportant townships of Atchison and Topeka. At that time not a mile of railroad had been built in Kansas or in any Territory west of that State, except on the Pacific coast, to which there had been an enormous immigration occasioned by the wonderful discovery of gold.

The outbreak of the Civil War delayed the undertaking of the Atchison-Topeka line, and

nothing more was done until 1863. In that year new interests took control of the enterprise and acquired rights for its extension through southwestern Kansas in the direction of Santa Fé, the capital of the Territory of New Mexico. The company, which had originally been the Atchison and Topeka, now changed its name to the Atchison, Topeka and Santa Fé and obtained from the Government a very valuable land grant of 6400 acres for every mile constructed, the only condition being that within ten years the line should be completed from Atchison to the western border of Kansas. The plan involved the building of only 470 miles of road, which when finished would assure the company nearly three million acres of land within the State of Kansas.

A decade would seem to be ample time for the construction of this comparatively short railroad, particularly with the inducement of so extraordinary a land grant. Not only the Union Pacific but the Central Pacific and Kansas Pacific — all built within this decade — had to accomplish far more construction in order to secure their respective grants, and yet they had their complete lines in operation years before the Santa Fé had fifty miles of track in actual commission. The reason

for this delay was of course a financial one. The other roads had all received government aid in cash or securities in addition to land grants. But the Atchison line was, from the start, thrown on its own resources in raising capital, and it was not until late in 1869 — nearly a year after the opening of the Union Pacific to the coast — that any construction work whatever was done. In that year the section from Topeka to Burlingame, consisting of about twenty-eight miles, was opened for traffic, and a year later the extension to Emporia was finished, thus making a total of sixty-one miles under operation.

The terms of the land grant provided that the entire line across Kansas should be completed by June, 1873. When by 1872 only sixty-one miles of track had been built, the company still had over four hundred miles to go within ten months if it expected to obtain the land grant. But so energetically did the owners of the property work from that time on that within seven months they had reached the eastern boundary of Colorado and had thus saved the grant.

But like most of the Western railroads built in those early days the Santa Fé property was, in a sense, ahead of its time. The rapidity with which

it shot across the State of Kansas in 1872 was equaled only by the promptness with which it fell into financial straits. No sooner had its complete line been opened for traffic than the panic of 1873 occurred; the company became embarrassed by a large floating debt; and a compromise had to be made with the bondholders whereby a postponement of a year's interest was arranged.

No attempts were made to extend the Santa Fé during the long period of depression following the panic of 1873. The road ended in 1872 at the Colorado state line, and during the next few years the only building of importance was a western spur to connect with the Denver and Rio Grande at Pueblo, thereby giving an outlet to the growing city of Denver and the rapidly developing mining regions of Colorado. About 1880, construction was resumed in a leisurely way, down the valley of the Rio Grande into New Mexico and in the direction of Albuquerque. In this extension, as in later building, the line of the old Arizona trail was usually followed. One writer has declared that "the original builders of the Atchison followed the line of the Arizona trail so religiously that if the trail skirted a ten-foot stream for a quarter of a mile tc strike a shallow spot for fording, the railroad

builders did likewise, instead of bridging the stream where they struck it, and where the trail ran up a tree or hid in a hollow rock to avoid the wolves or savages, the railroad did the same!"

The traveler of a generation ago over this particular section of the Santa Fé lines might have felt that there was some truth in this criticism; but the Atchison has long since cut out these idiosyncrasies of early construction, and the main line in this section of New Mexico is now noted for alinement and absence of curves and grades.

The builders of the Santa Fé lines in the early days no doubt planned ultimately to penetrate to the Pacific coast, knowing that the real opportunity for the road lay in that direction. The Southwest was yet but sparsely settled; and no railroad which had as its objective the plains or alkali deserts of Arizona or New Mexico could thrive — at least it could not for decades to come. And yet in the early eighties the real objective of the Atchison system had not been determined. Having passed its original objective point, Santa Fé, the road had reached Albuquerque, but it could not afford to stop there. Through traffic it must have or die. New Mexico, with its thin population and its total lack of development, could

not supply traffic in sufficient amount even to "feed the engines."

To extend somewhere, then, was an imperative necessity. But whither? Several routes were under consideration. The Southern Pacific lines had worked eastward to El Paso on the Mexican border, several hundred miles due south from Albuquerque, and it looked feasible to extend the Atchison to that point and arrange a traffic agreement with the Southern Pacific, or to build an extension through New Mexico to Deming and then westward along the river valleys and down into Mexico to Guaymas on the Gulf of California. It was possible, in the third place, to build directly west from Albuquerque through Arizona and Southern California to the coast. Ultimately all of these plans were carried out.

The first extension of the Santa Fé was to Deming, New Mexico, where in March, 1881, its tracks met those of the Southern Pacific, and by agreement the company secured the use of the Southern Pacific to Benson, Arizona. From the first this new through route to the Pacific began to pay handsomely. Later on the line into Guaymas, Mexico, was added by the purchase of the Sonora Railway. Soon afterward the Santa Fé secured

from the St. Louis and San Francisco Railway a half interest in the charter of the Atlantic and Pacific, a company which planned to build through to the coast. Meanwhile the St. Louis and San Francisco had been acquired by the Gould and Huntington interests, which, as the owners of the Texas and Pacific and the Southern Pacific systems, naturally opposed the plans of the Santa Fé. The matter was compromised by the agreement of the Santa Fé to build no farther west than the Colorado River, where the Santa Fé was to be met by an extension of the Southern Pacific line from Mojave, California.

This arrangement proved unprofitable to the Santa Fé, for the Southern Pacific naturally diverted traffic to El Paso and Ogden. A new arrangement was accordingly made in 1884, involving the purchase, by the Atlantic and Pacific, of the Southern Pacific division between Needles and Mojave, the obtaining of trackage rights between Mojave and San Francisco, and the use of the Southern Pacific terminals at San Francisco. To assure a connection with the coast in Southern California, the Santa Fé built a line to Colton, acquired the California Southern Railway from Colton to San Diego, and effected an entrance to

Los Angeles by leasing the Southern Pacific tracks from Colton.

The Santa Fé had now reached the Pacific coast over its own lines, but it was handicapped by poor connections with the East. Its next move therefore was eastward to Chicago, where it acquired the Chicago and St. Louis Railroad between Chicago and Streator, Illinois, and then constructed lines between the latter point and the Missouri River. During the same year the company opened branches southward to the Gulf of Mexico, until by May, 1888, the entire system comprised 7100 miles.

This rapid expansion of the property, combined with extravagance in management and a reckless policy in the payment of dividends, brought the company into financial difficulties within a year after the completion of the system. Unprofitable branches had been built, and these had become an immediate burden to the main system. It is the same story that has been told of most of the large railroads of those days. Strenuous efforts were made to save the property from a receivership, and a committee was appointed in September, 1889, to devise ways and means of reform and reorganization.

The new management of the Santa Fé was a rational one and substantially reduced the obligations of the road. Had its spirit been maintained, a second failure and reorganization a few years later would not have been necessary. New interests, however, came into the property, and, though it was hoped that they would support a conservative policy, the former programme of expansion was resumed until in 1890 the St. Louis and San Francisco system was merged with the Santa Fé on a very extravagant basis. Within a year it was clear that the St. Louis and San Francisco would prove more of a liability than an asset. During the same time the less important purchase of the Colorado Midland Railway also turned out to be a poor investment.

The next four years were marked by more bad financial management which culminated in the failure of the reorganized company. In 1892 an exchange of income bonds for fixed interest-bearing bonds so increased the fixed charges of the company that, as a result of the panic of 1893 and its ensuing depression, the great Santa Fé system suddenly found itself in the hands of a receiver. The president, John W. Reinhart, had persistently asserted throughout 1893 that the company was

financially sound; but an examination of its books subsequently made in the interest of the security holders disclosed gross irregularities, dishonest management, and manipulation of the accounts.

During the year 1894 the property was operated under the protection of the courts, and early in 1895 a new and comprehensive scheme of reorganization was carried out. This latest plan involved dropping the St. Louis and San Francisco system, the Colorado Midland, and all other unprofitable branches; it wiped out the floating debt; it supplied millions of new capital; and it enabled the succeeding management at once to build up and improve the property.

At the head of the new company was placed Edward P. Ripley — a railroad manager of great executive ability and a practical, broad-minded business man of the modern type, who has ever since remained president of the road. The history of the Santa Fé since 1895 has been closely identified with Ripley's business career, and its record during these two decades has been an enviable one. Steady progress from year to year in volume of business, in general development of the system, in improvement of its rights of way, terminals, and equipment, has characterized its history

through periods of depression as well as times of prosperity. Its resources have grown to vast totals; its credit equals that of the best of American railroads; its stocks and bonds are prime investments; and each year it pours millions of dollars of profits into the hands of its stockholders.

CHAPTER IX

THE GROWTH OF THE HILL LINES

The States which form the northern border of the United States westward from the Great Lakes to the Pacific coast include an area several times larger than France and could contain ten Englands and still have room to spare. The distance from the head of the Great Lakes at Duluth to the Pacific coast in the State of Washington is greater than the distance from London to Petrograd or the distance from Paris to Constantinople, and three times the distance from Washington, D. C., to Chicago.

Fifty years ago these States, with the single exception of Wisconsin, were practically a wilderness in which only the Indian and buffalo gave evidences of life and activity. No railroads penetrated the forests or the mountain ranges. Far southward some progress in the march of civilization had been made; the Union Pacific had linked

the West with the East before the eighth decade of the century began, and the Northern Pacific project was being painfully pushed through the intermediate tier of States during the seventies. But the material resources of the Great Northwest had still to be discovered.

When the Northern Pacific Railway failed in 1873, the crash involved a little railroad known as the St. Paul and Pacific, running out of St. Paul for a couple of hundred miles westward, with a branch to the north joining the Northern Pacific at Brainerd, Minnesota. The St. Paul and Pacific had been acquired in the interest of the Northern Pacific some years earlier but was now regarded as a property so worthless that its owners would be glad to get rid of it, if only they could find a purchaser rash enough to take it over.

During the three years following the panic of 1873 the crops of Minnesota were practically eaten up by the grasshoppers, and poverty reigned among the farmers. At that time a short, stocky man with long hair, one blind eye, and the reputation of being the greatest talker in town, kept a coal and wood store in St. Paul. His name was James J. Hill. For years he had been a familiar figure, sitting in his old chair in front of his store

and discoursing on current events. This man was not only an interesting talker; he was a visionary, a dreamer — and one of his dreams was to buy the St. Paul and Pacific Railroad and to transform it into a real railway line. Nearly twenty years had passed since he had drifted in, an eighteen-year-old Scotch-Irish boy from Ontario, and had begun work in a steamship office on the levee at St. Paul. Now, in 1876, he was thirty-eight years old and a town character. And the town felt that it had his measure. He had already tried a variety of occupations, and at this time was agent for lines of steamboats on the Mississippi and the Red River. Everybody knew him and liked him, but no one took him very seriously. The idea of his controlling the St. Paul and Pacific was even amusing.

Now the most promising part of the St. Paul and Pacific when it failed in 1873 was the line from St. Paul to Breckenridge on the Red River. Hill was the Mississippi steamboat agent at one end; at the other, an old Hudson Bay trader, Norman W. Kittson, ran two little old stern-wheel steamboats from Breckenridge to Winnipeg. A large part of the freight that Hill and Kittson handled was for the Hudson's Bay Company. It came up

the Mississippi, went across on the St. Paul and Pacific to Breckenridge, and then down the Red River on Kittson's steamboats until it was received at Fort Garry, Winnipeg, by Donald Alexander Smith, then commissioner for the Hudson's Bay Company.

Smith, who became afterwards Lord Strathcona and High Commissioner for Canada in England, was a tall, lean, urbane Scotchman with a soft manner and a long red beard. In 1876 he was fifty-six years old, with a life of strange, wild adventure behind him. He had gone when little more than a boy to Labrador to take charge of a station of the Hudson's Bay Company. Among the northern Indians he stayed for thirteen years. In the sixties he was practically king over all the savage territory of the company along the waters entering Hudson Bay. By the seventies he was a man of means and he had some influence in the new Dominion of Canada.

It would be a great advantage to Smith to have a good railroad from St. Paul to Winnipeg as the Red River boats were frozen up in the winter and the service on the St. Paul and Pacific, under the receiver, was impossible. So Smith listened with favor to Hill's project of getting hold of the St.

Paul and Pacific and making a real railroad out of it. And whenever Smith went to Montreal he talked the matter over with his cousin George Stephen — later Lord Mount Stephen — who was the head of the Bank of Montreal. In 1877 Stephen and Richard B. Angus, the general manager of the Bank, went to Chicago on business. While there, they had two weeks' time on their hands, and tossed a penny to decide whether to run down to St. Louis or up to St. Paul. The penny sent them to St. Paul. "I am glad of that," said Stephen; "it will give us a chance to see the prairies and look over that St. Paul and Pacific road that Donald Smith is always talking about."

When they arrived in St. Paul, James J. Hill took them over the line to Breckenridge. The country had been scoured by the grasshoppers and looked like the top of an old rusty stove. But Stephen was a broad-minded man, wise enough to know that the pest of grasshoppers could not last forever. He was greatly impressed with the ultimate possibilities of the soil and, under the hypnotic influence of Hill's eloquence, became quite enthusiastic over the scheme for getting hold of the railroad; but, as it would evidently involve millions, he didn't see how it could be done.

The road had originally been financed by bonds sold largely in Holland, and to do anything at all it was necessary to get in touch with these Dutch bondholders. In 1877 Stephen went over to Amsterdam and secured an option on the bonds at thirty cents on the dollar — less than the accrued interest which was due and unpaid on them. He then came back to America, conferred with John S. Kennedy at New York, who represented both Dutch and American bondholders, and brought Kennedy into the combination.

In the spring of 1878 the St. Paul and Pacific was taken over. People still smiled at Hill and wondered how he had induced a hard-headed bank president like Stephen to put up the money. Nobody in St. Paul believed in the future of the road. Even the syndicate's attorneys, when offered a choice between taking $25,000 in cash or $500,000 of the new road's stock for their services, preferred the cash. Had they taken the stock and held it for thirty years, they would have had, in principal and interest, some $30,000,000.

To the surprise of everybody, including Hill and his friends, the grasshoppers suddenly disappeared in the early summer of 1877 and never came back. That summer saw the biggest wheat crop that

had ever been harvested in Minnesota. "Hill's Folly," as it was afterwards called, with its thirty locomotives and few hundred cars, was feverish with success. Hill worked every possible source to get extra cars and went all the way to New York to buy a lot of discarded passenger coaches from the Harlem Railroad. By the end of the season it was evident to everybody that the St. Paul and Pacific was going to have a career and that "Jim" Hill's dream was coming true.

Immediately the fortunate owners began to plan for the future. They had acquired the road at an initial cost of only $280,000 in cash. In the following year they advanced money for the completion of the unfinished section, as necessary to obtain the benefit of a generous grant of land from the State. Then, in 1879, having acquired full possession of the property, and having several millions of dollars in profits, they issued bonds for further developments. This gave them sufficient basis to enlarge their scheme greatly, and in the formation of the St. Paul, Minneapolis and Manitoba Railroad, they created $15,000,000 of stock, which was divided equitably among Hill, Stephen, Angus, Smith, Kennedy, and Kittson. This stock was all "water," but the railroad prospered so

extraordinarily in the succeeding few years that by 1882 the stock was worth $140 a share. And in 1883 they issued to themselves $10,000,000 of six per cent bonds for $1,000,000 — a further division of $9,000,000, coming out of nothing but good will, earning power, and future prospects.

The decade from 1880 to 1890 witnessed a steady growth of the system formed in 1879 under the name of the St. Paul, Minneapolis and Manitoba. The 600 odd miles which it embraced when Hill and his coterie made their big stock division had grown in 1890 to 2775 miles. It then consisted of a main line reaching from St. Paul and Minneapolis across Minnesota and the northern part of North Dakota, far into Montana, with a second main line from Duluth across Minnesota to a junction with the St. Paul line in North Dakota, besides numerous branches reaching points of importance in both these States.

But the development of the Hill properties had by no means reached its limit at this time. Hill's dream had been to construct a through line across the northern tier of States and Territories to the Pacific, and this plan had been constantly in his mind while he was building up the system in Manitoba. The original line running up into Manitoba

and reaching Winnipeg was all very well as a start. It had paid so well that the original group of men had become millionaires almost overnight. But Hill meant to show the public that, after all, the early success was only an incident and merely a stepping-stone to the really great thing.

Practical railroad men everywhere ridiculed the idea of a railroad running across the far northern country, climbing mountain ranges, traversing hundreds of streams and extending for great stretches through absolutely wild and uninhabited regions. Especially did they deem it absurd to attempt such an undertaking without government aid, subsidies, or grants of land, pointing to the experience of such roads as the Union Pacific, Northern Pacific, and Santa Fé. All these had received financial assistance and large land grants, and yet all had gone through long periods of financial vicissitude before they had become profitable and stable enterprises.

But Hill was more farseeing than his critics. In 1889 the name of the company was changed to the Great Northern Railway, and under this title the extension to the coast was rapidly carried forward and was opened in the panic year of 1893. When all the other transcontinental lines went into

bankruptcy, Hill's road not only kept out of the courts but actually earned and paid annual dividends of five per cent on its stock. The five years from 1896 to 1901 were years of uninterrupted prosperity for the Great Northern Railroad. Each year its credit rose; each year it grew to be more of a force in the Western railway situation. In these years the control of the property had somewhat changed and a few of the original promoters had died or had withdrawn. But Hill, Lord Strathcona, Lord Mount Stephen, and John S. Kennedy of the original group, all held their large interests, and Hill in particular had added to his holdings as the years had gone by.

The secret of Hill's striking success with his Western extension was the method by which the line was constructed. Hill had a theory that it was far better to go around mountains and avoid grades than to climb them or to bore through them; it was always better to find the route which would make long hauls easy and economical. He thus built his road with the idea of keeping down the operating costs and of showing a larger margin of profit than the others. From the very start the Great Northern was noted for its low ratio of operating expenses and its comparatively long trains

and heavy trainloads. It was by this method that it really made its money.

By the year 1901 the Great Northern Railway absolutely controlled its own territory. But it was still handicapped by lack of an independent entrance into Chicago, as its eastern lines terminated at Duluth and St. Paul. At the western end also, the situation was unsatisfactory. It seemed important for the Great Northern to control a line of its own into Portland, Oregon, because the Northern Pacific Railroad, which, as we have seen, had been reorganized several years before by the Morgan interests, had been rapidly extending its lines in Oregon and Washington. Hill and his associates, therefore, had been quietly buying a substantial interest in the Northern Pacific property and thus, in the course of time, had come into closer relations with the Morgan group in New York. Soon afterward, under Hill's influence, the Northern Pacific began the construction of further extensions in Oregon and reached into territory that the Harriman interests in the Union Pacific Railroad had regarded as their own. This move created much friction between the Harriman and Hill groups, and in order to forestall danger Harriman in turn

began quietly accumulating an interest in the Northern Pacific property by purchases in the open market.

The story of the battle royal between the Hill and Harriman interests will be told in a subsequent chapter. It is not necessary to repeat the history of the famous corner of 1901 nor of the compromise effected by the formation of the Northern Securities Company. The final result of this contest was the complete harmonizing of the Western railroad situation, so far as the Hill and the Harriman interests were concerned. In the succeeding years the Great Northern system penetrated to the heart of Manitoba and constructed lines through British Columbia to Nelson and Vancouver. It built other branches to Spokane, Washington, and Helena and Butte, Montana. Moreover by the discovery of extensive ore deposits on the lines of the company in northern Minnesota and by subsequent purchases of other mines, the Great Northern acquired control of about sixty-five thousand acres and hundreds of millions of tons of iron ore. All the properties so controlled were leased on a very profitable basis to the United States Steel Corporation. The Great Northern Railroad itself did not retain control of the ore lands but,

through a trusteeship, gave a beneficial interest in them to its stockholders in the shape of a special dividend.

The profits under this lease promised to be very large in the course of time, but the Steel Corporation had the option to cancel after a five-year period, and in 1912, as the result of a United States Government suit for the dissolution of the Steel Corporation, the lease was canceled. Since that time the trustees of the ore lands have executed other leases, and the Great Northern ore certificates are bringing in a substantial return to their owners.

The three Hill lines — the Great Northern, the Northern Pacific, and the Chicago, Burlington and Quincy — have been unusually profitable. The Great Northern and the Northern Pacific have steadily paid liberal dividends to their stockholders on increasing amounts of capital stock; and the Burlington, whose whole stock is owned by these two roads, has also handed over liberal profits year by year, at the same time accumulating an earned surplus of more than one hundred million dollars and spending an almost equal amount of profits on the improvement and maintenance of the property. The Burlington today controls the Colorado

Southern, which extends southward from the Burlington lines in Wyoming, passing through Denver, Pueblo, Fort Worth, and other points southward to the Gulf.

CHAPTER X

THE RAILROAD SYSTEM OF THE SOUTH

In the year 1856 a small single-track railroad was opened from Richmond to Danville, Virginia. This enterprise, like many others in ante-bellum days, was carried out largely with funds supplied by the State. As long afterwards as 1867, three-fifths of the stock was owned by the State of Virginia, but soon after this time the State disposed of its investment to a railroad company operating a line in North Carolina from Goldsboro westward to Greensboro, and projected southward to Charlotte. In modern times, this little road, like the Richmond and Danville, has become an integral part of the Southern Railway system, but in those days it was controlled, curiously enough, by the Pennsylvania Railroad Company.

After 1867 the new owners of the Richmond and Danville began aggressively to extend their lines. By leasing the North Carolina Railroad, a small

property forming a link with the Greensboro line, they created a through route from Richmond to Charlotte. By 1874 they had built the road southward to Atlanta, Georgia, and had thus formed the first continuous route from Richmond to that city. Because of the extreme disorder and depression in the South during the years after the Civil War the line did not prosper and was sold under foreclosure about 1875. But the company was reorganized in 1878 and acquired the Charlotte, Columbia and Augusta, thus extending its lines into the heart of South Carolina and tapping a rich territory. During these early years the Pennsylvania Railroad interests, which still held control, supplied the funds necessary for making improvements.

At the same time that the Richmond and Danville was linking up the commercial centers of the southern Atlantic seaboard, another system — known as the East Tennessee, Virginia and Georgia — was being built up in the Appalachian Mountains to the west. This property and its predecessors had to some extent been state-owned enterprises at first, but in 1870 the Pennsylvania Railroad interests acquired control. A holding company called the Southern Railway Securities

Company was now formed for the purpose of controlling all the Pennsylvania Railroad interests south of Washington. Besides the properties mentioned, this Securities Company soon obtained several other Atlantic seaboard properties extending from Richmond to Charleston, and also the Memphis and Charleston Railroad, running from Memphis to Chattanooga.

Thus at this early day a considerable railroad system had been welded together in the South, reaching many points of importance and forming direct connection at Washington with the northern properties of the Pennsylvania system. Had this experiment been successful, we would perhaps today reckon the great Southern Railway system as part of the Pennsylvania group. But the outcome was disappointing; the roads did not prosper; and soon the poorer sections began to default. The Pennsylvania then disposed of its interests and left the roads to shift for themselves.

The East Tennessee was the best of these minor lines, and in 1877 it began to acquire others extending through the South. Soon it had penetrated the heart of Alabama, reaching what is today known as the Birmingham district. Additional extensions were made to Macon and Rome,

Georgia, and on the north an alliance was arranged with the Norfolk and Western, while with a view to securing some of the business of the West, a connection was constructed at Kentucky-Tennessee state line. Such was the condition of the East Tennessee property by the end of 1881. In the meantime the Richmond and Danville had practically stood still.

About this time a definite revival set in throughout the South as the long-drawn-out period of depression following the war came to an end. Railroad activity revived, and both the East Tennessee, Virginia and Georgia and the Richmond and Danville roads passed into the hands of new and more aggressive interests. The new owners constructed the Georgia Pacific, which ultimately stretched across Alabama and Mississippi. To finance this enterprise and to consolidate their interests, a new holding company — the Richmond and West Point Terminal Railway and Warehouse Company — was formed in 1881 with large powers and authority to acquire the stocks and bonds of railroad properties in many Southern States. In addition to the properties already named, the Virginia Midland Railway was now acquired, and by 1883 the entire system had been merged under

this organization. The company also secured the control of a line of steamboats running from West Point, Virginia, to Baltimore, and made close traffic arrangements with the Clyde line of steamers running between New York and Philadelphia and all important Southern points.

The personality at the head of the Richmond and West Point Terminal Railway and Warehouse Company was Calvin S. Brice, a man who had become increasingly prominent in railway affairs in the Southern States. Brice was something of a genius at combination and by 1883 had linked together and solidified the various properties in a very efficient manner. Nevertheless the competitive conditions of the time, combined with the necessarily more or less crude and hazardous methods adopted in financing and capitalizing the enterprise, prevented the credit of the organization from reaching a sound and secure level. The Tennessee properties especially proved an encumbrance, and they were almost immediately threatened with bankruptcy. Brice therefore decided to reorganize these subsidiary lines, and a new company called the East Tennessee, Virginia and Georgia Railway took over this section of the system in 1886.

In the meanwhile the Richmond and Danville properties, which were themselves becoming burdened with an ever growing debt, gave the Brice interests constant trouble. A large amount of the stock of the Richmond and Danville, as well as most of its bond issues, remained still outstanding in the hands of the public. Consequently the only way in which Brice and his friends could save the Richmond and Danville property from completely breaking up was to merge it more closely with the holding company in some way. But the credit and standing of the holding company itself were anything but high, for in addition to paying no dividends it had piled up a heavy floating debt of its own and had a poor reputation in Wall Street.

The situation thus becoming acute, the management carried through a remarkable stock-juggling plan. Instead of merging the Richmond and Danville directly into the West Point Terminal Company, the directors secretly decided to turn the Terminal Company assets over to the Richmond and Danville without apprising the stockholders of the Terminal Company. In conformity with this plan, early in 1886 the Richmond and Danville leased the Virginia Midland, the Western North Carolina, and the Charlotte, Columbia and

Augusta railroads, and later in the year the Columbia and Greenville and certain other small lines. At about the same time the Richmond and Danville obtained in some unknown way large amounts of the Terminal Company stock, a portion of which it now issued in exchange for stocks and bonds of certain of these subsidiary companies which it had leased. Having carried through these transfers, the Richmond and Danville then threw the remainder of its Terminal Company stock on the market, where it was bought by investors who knew nothing about these secret transactions.

The Terminal Company was now left high and dry so far as the Richmond and Danville was concerned. But at this juncture a surprising thing happened. The management of the Terminal Company, in its turn, began to buy shares of Richmond and Danville stock and in a short time regained its former control. This shifting of power exactly reversed the situation which had previously existed, when the Terminal Company itself had been controlled by the Danville Company. These changes were followed by a further move on the part of the Brice and Thomas interests, which now formed a syndicate and turned over to the Terminal Company a majority of the stock

of the East Tennessee Company for $4,000,000 in cash and a large amount of new Terminal Company stock.

When these transactions had been accomplished, the Terminal Company found itself once more securely in control of the entire system, and the Brice and Thomas interests had incidentally very considerably increased their fortunes and also their hold on the general situation. From this time, the Terminal Company went aggressively forward in an ambitious plan for further expansion. By acquiring control of the Central Railroad and Banking Company of Georgia, the Terminal management was involved with new financial interests which immediately sought to control the system and to eliminate the Brice and Thomas group. The consequent internal contest was adjusted, however, in May, 1888, by electing as president John H. Inman, a man who had been identified with the Central Railroad of Georgia system.

The Richmond Terminal system now put in motion further plans for expansion. In 1890 it acquired a system of lines extending south from Cincinnati to Vicksburg and Shreveport, known as the Queen and Crescent route, and in the meantime made a close alliance with the Atlantic Coast

Line system. By the end of 1891 the Richmond Terminal system embraced over 8500 miles of railroad, while the Louisville and Nashville, the next largest system in the Southern States, had only about 2400 miles.

But as 1891 opened, the vast Richmond Terminal system was perilously near financial collapse. Notwithstanding the great value of many of the lines, its physical condition was poor; the liabilities and capitalization were enormous; and much of the mileage was distinctly unprofitable. About this time many disquieting facts began to leak out: during the previous year the Richmond and Danville had been operated at a large loss, and this fact had been concealed by deceptive entries on the books; the dividends paid on the Central Railroad of Georgia stock had not been earned for some years; and the East Tennessee properties were hardly paying their way.

Various investigating committees were now appointed, and finally a committee headed by Frederic P. Olcott of New York took charge and worked out a complete plan of reorganization. The scheme, however, met with strenuous opposition, and thus matters dragged on into the panic period of 1893, when the entire system went into

bankruptcy and into the hands of receivers. The various sections were operated separately or jointly by receivers during this unsettled period, and it looked for some time as though an effective reorganization which would prevent the properties from entirely disintegrating could not be successfully accomplished.

In the dark days of 1893, after Olcott and the Central Trust Company had failed to effect a reorganization of the Richmond Terminal system, a new interest came to the rescue, represented by the firm of J. P. Morgan and Company, whose growing reputation was due to the unusual personality of J. P. Morgan himself. He was essentially an organizer. The railroad properties which had become more or less identified with the Morgan interests had for the most part prospered. It was felt that Morgan's banking-house was the only one in Wall Street which might be equal to the task. The proposal was made to him; he did not invite it. In fact, it is said that for some time he was much opposed to taking hold of this disintegrated and broken-down system of railroads operating largely in poor and unprogressive sections, populated for the most part by negroes. Said Morgan, "Niggers are lazy, ignorant, and

unprogressive; railroad traffic is created only by industrious, intelligent, and ambitious people."

After months of discussion, however, Morgan finally agreed to undertake the task, and out of the previous chaos there emerged the Southern Railway Company, which has been closely identified with Morgan's name ever since. Probably of the many railroad systems which Morgan reorganized from 1894 down to the time of his death, no system has become more distinctly a Morgan property than the Southern Railway Company.

The plan of reorganization whereby this great aggregation of loosely controlled and poorly managed Southern railroads was welded together into an efficient whole was a very drastic one in its effect on the old security holders. Debts were slashed down everywhere, assessments were levied, and old worthless stock issues were wiped out. Valueless sections of mileage were lopped off, and an effort was immediately made to strengthen those of real or promising value. Millions of dollars of new capital were spent in rebuilding the main lines; terminals of adequate scope were constructed in all centers of population; and alliances were made with connecting links with a view to

building up through traffic from the North and the West.

The first ten years of the Southern Railway system under the Morgan control were practically years of rebuilding and construction. While after ten years of work the main system still radiated through most of the territory already occupied in a crude way in 1894, yet it had acquired a large number of feeders and smaller railroads in other sections. The Mobile and Ohio, operating with its branches about one thousand miles from Mobile to St. Louis, Missouri; the Georgia Southern and Florida, furnishing an important connection from the main system to various points in the State of Florida; the Alabama Great Southern, operating in and near the Birmingham district of Alabama — all these properties were molded into the system during these years. The system was then rounded out toward the North and consolidated through joint control, with the Louisville and Nashville, of the Chicago, Indianapolis and Louisville Railroad, which operated lines northward into Ohio and Illinois and on to Chicago. Thus, with the lines of the Queen and Crescent route running southward from Cincinnati to New Orleans, the system secured a direct through line from

its various southern points to the shores of the Great Lakes.

In addition to these developments, the management of the Southern Railway system arranged direct connection with Washington through the joint acquisition with other lines of the Richmond, Fredericksburg and Potomac; it made traffic arrangements with the Pennsylvania and the Baltimore and Ohio systems to Baltimore, Philadelphia, and New York; and it also developed close alliances with the coastwise steamships plying northward from various Southern points.

In the reorganization of 1894 the Central of Georgia Railway system was cut off and separately reorganized, although it remained under the control of Morgan for a number of years. Finally in 1907 Morgan sold his Georgia properties to Charles W. Morse. They subsequently passed to Edward H. Harriman, who afterwards merged them into the Illinois Central system, under which control they have since remained.

As compared with the old Richmond Terminal aggregation with its broken-down rails and roadbed, poor equipment, and miserable service, the modern Southern Railway system shows startling changes. The Southern States have grown

enormously in population and wealth during the last generation; the industrial activities of the South at the present time are elements of large importance to the country as a whole. Cities have vastly increased in population; new towns and manufacturing districts have been built up; and at the present there is scarcely a mile of unprofitable railroad in the entire 9000 miles under operation. In recent years large soft coal deposits have been discovered and developed on many of the branch lines, and today the coal tonnage of the Southern Railway is exceeding the relatively unstable lumber tonnage of two or three decades ago.

CHAPTER XI

THE LIFE WORK OF EDWARD H. HARRIMAN

In a previous chapter there has been related the early history of the great line that first joined the Atlantic and the Pacific Oceans — the Union Pacific. But the history of this property in recent years is almost as startling and romantic as its story in the sixties and seventies. It was not until recent days that the golden dreams entertained by these early builders came true. The man who really reaped the harvest and who at the same time gave the Union Pacific that position among American railroads which its founders foresaw was the last, and some writers think, the greatest of all American railroad leaders.

The Union Pacific, a bankrupt railroad in 1893, lay quiescent under the stress of the hard times that lasted until 1898. The long story of its tribulations hardly made it a tempting morsel for the men who were then most active in the railroad field.

In 1895 or 1896 the several protective committees which had been appointed to look after the interests of stockholders and defaulted bondholders had tried to induce J. P. Morgan to undertake the reorganization, but he had refused. To reorganize the Union Pacific meant that not far from one hundred millions of new capital would sooner or later have to be supplied, and there was no other banking-house in America at that time which seemed strong enough for the task. Smaller concerns were all involved in the Morgan syndicates or in other undertakings, and a combination of these at the moment seemed out of the question.

About this time the German-Jewish banking-house of Kuhn, Loeb and Company began looking into the situation. Kuhn, Loeb and Company were known as a very conservative but very rich concern with close connections in Frankfort and Berlin. Though it had been long established in New York it had not been identified with the railroad reorganization movement nor had it been prominent as an investing or underwriting institution. But now the active partner of the business, Jacob H. Schiff, set out seriously to persuade the various committees to adopt a plan of reorganization which he had devised. Though he made some

progress, he soon found much secret opposition and thought that Morgan might be quietly attempting to secure the property. Morgan, however, was not interested. The mystery was still unsolved.

The fact was that Edward H. Harriman, who for some years past had been a powerful influence in the affairs of the Illinois Central Railroad but who was unknown to the average Wall Street promoter and totally unheard of throughout the country, had made up his mind to reorganize the Union Pacific Railroad. He therefore began to work quietly with various interests in an attempt to tie up the property. But soon he, like Schiff, encountered serious opposition. He also immediately jumped to the conclusion that Morgan was secretly at work, and he called on Morgan for the facts. Morgan replied, as he had replied to Schiff, that he was not interested, but that he wished Harriman success.

As Schiff continued to meet with difficulty, he soon called on Morgan again. Again Morgan replied that he was not interested. "But," he said, "I think if you will go and see a chap named E. H. Harriman you may find out something."

Who was Harriman? Schiff had hardly heard of him and had never met him. How could a small

man like Harriman, with no money, no powerful friends, no big financial backing, reorganize a great system like the Union Pacific Railroad? The idea seemed ridiculous. Nevertheless, as the opposition continued, Schiff soon got in touch with Harriman. In the course of a conference, he warned this daring interloper to keep his hands off the Union Pacific. But Harriman was not moved by threats. On the contrary, he insisted that Schiff should leave the Union Pacific alone; that he himself had already worked out his plans to reorganize it. Schiff laughed at this idea, termed it chimerical, and asserted that Kuhn, Loeb and Company were easily able to obtain the needed one hundred millions or more through their foreign connections on a basis of from four to five per cent, and that in America no such sum of new capital could at that time be raised through banking activities at better than six or seven per cent.

Harriman then sprang his surprise on Schiff. For some years he had been financially interested in the affairs of the Illinois Central. This property had at that time higher credit than any other American railroad; it had raised large sums of capital in Europe on as low a basis as three per cent, and on most of its bonds paid only

three and one-half per cent interest. For nearly fifty years the property had been paying dividends with hardly an interruption, and altogether it had an enviable reputation as one of the soundest investments. Harriman's influence in the affairs of the company had been increasing quietly for years; the management had been left almost completely in his hands; and the directors were in effect largely his puppets, and a majority would do his bidding in almost anything he might propose.

Harriman now announced to Schiff that he intended to have the Union Pacific reorganized as an appendage of the Illinois Central. The necessary one hundred millions would be raised by a first mortgage on the entire Union Pacific lines at three per cent, and the mortgage would be guaranteed by the Illinois Central, while the latter company would receive a majority of the new Union Pacific stock in consideration for giving its guarantee.

Here was a poser for Schiff, who saw at once that if Harriman could use the Illinois Central credit in this way, he certainly could carry out his plan. Schiff soon found that Harriman would have no difficulty in using Illinois Central credit. The upshot of the matter was that the two men got together and jointly reorganized the Union

Pacific. Harriman was made chairman of the Board of Directors, and Kuhn, Loeb and Company became the permanent bankers for the new railroad system.

Thus with one bound Harriman had leaped to the forefront in American railroad finance and by a bold act which was characteristic of the man. For Edward H. Harriman was not only a hard-headed, practical business builder who like Morgan thought in big figures, but he was also a bold plunger, which Morgan was not. Possessing a vivid imagination, he not only saw far into the future but he also planned far into that same future. Morgan was also a man of vision, but his vision did not carry him far beyond the present. The things Morgan saw best were those immediately before him, while the things that Harriman saw best were at a distance. Morgan's big plans of procedure were based on what he saw in a business way in the near future; he reorganized his railroads with the idea of making them pay their way as soon as possible and of showing a good return on the capital invested. He thought little of what might be the outcome a decade or two hence or of what combinations might later be worked on the chessboard as a result of his immediate moves.

Morgan's mind was not philosophical; it was intensely practical.

While Morgan declined the proffered control of the Union Pacific on the theory that it was only a "streak of rust" running through a sparsely settled country and across an arid desert, Harriman dreamed of the great undeveloped West filling up with people during the following generation, of the empty plains being everywhere put under cultivation, and of the arid desert responding to the effects of irrigation on a large and comprehensive scale. He foresaw the wonderful future of the Pacific States — the opening up of natural resources in the mountains, the steady stream of men and women who would ultimately emigrate to this vast section from the East and from foreign lands and who would build up towns and great cities. At the same time, with that practical mind of his, Harriman calculated that the Union Pacific Railroad — situated in the heart of this huge area, having the most direct and shortest line to the Pacific, and with all traffic from the East converging over half a dozen feeder lines to Omaha and Kansas City — would haul enormous amounts of tonnage just as soon as the Western country revived from the depression

under which it had been struggling for half a dozen years.

When Harriman took hold of the Union Pacific he had already determined to absorb the Oregon lines, with their tributaries running up into the Puget Sound country and to the Butte mining district; to get hold of the Southern Pacific properties at the earliest possible moment; and to link the Illinois Central in some way to the Union Pacific so that the latter would have its own independent outlets to Chicago and St. Louis. All these plans he ultimately accomplished, as well as many others, some of which his farseeing imagination may have conceived then.

While Harriman was able very promptly to carry through his first scheme and recapture the Oregon lines, which had been separately reorganized as a result of the receivership, he found it a far more difficult matter to secure a dominating interest in the great system of railroads controlled by Collis P. Huntington. Huntington was a hard man to deal with. Himself one of the practical railroad magnates of his time, he also had the gift of vision and undoubtedly foresaw that the ultimate result must be a consolidation of the properties; but he fully expected that his company

would absorb the Union Pacific. Had it not been that during the panic period the Southern Pacific had heavy loads of its own to carry and that its credit was none too high, Huntington might then have attempted to gain control of the Union Pacific.

Events finally worked to the benefit of Harriman. When Collis P. Huntington died in 1900, it was in most people's minds only a question of time as to when the powerful Harriman interests would take over the Southern Pacific properties. Consequently there was no surprise when in 1901 announcement was made that the Union Pacific had purchased the holdings of the Huntington estate in the Southern Pacific Company and was therefore in virtual control.

By a master stroke the railroad situation in the West had been radically changed. The Huntington system comprehended many properties of large and growing value, which were now feeling the full benefit of the agricultural prosperity at that time spreading throughout the great Southwest. Aside from this prize, the Union Pacific acquired the main line to the Pacific coast which it had always coveted and thus added to its system over nine thousand miles of railroad and over four thousand miles of water lines, besides obtaining a grip on the

railroad empire of this entire portion of the continent not to be readily loosened by competitors.

At the same time that Harriman was strengthening his position on the west and south, the Great Northern and Northern Pacific properties, both now operated under the definite control of James J. Hill, were following a policy of expansion fully as gigantic as that of the Union Pacific. The Great Northern lines operating from Duluth to the Pacific coast had become powerful elements in the Western railroad situation, and Hill had devised many plans for diverting to the north the through traffic coming from the central section of the continent. He had established on the Great Lakes a line of steamships running from Duluth to Buffalo, and was also operating on the Pacific Ocean steamship lines which gave him a connection with Japan, China, and other oriental countries.

After the reorganization of the Northern Pacific Railroad, which fell under the domination of Morgan, the affiliations of the Hill and Morgan interests became very close, and in a short time Hill had as secure a grip on the Northern Pacific as he had always had on the Great Northern. This powerful combination looked like a menace to the Harriman-Kuhn-Loeb interests which controlled the

territory to the south and radiated throughout the State of Oregon. When, therefore, the Northern Pacific began a little later to build into territory in Oregon and Washington which the Union Pacific regarded as a part of its own preserves, much bad feeling was engendered between the two interests. Matters were brought to a climax in the spring of 1901 when the Harriman people suddenly made the discovery that the Hill-Morgan combination had been quietly buying control of the valuable Chicago, Burlington and Quincy Railroad, which operated a vast system west and northwest of Chicago, penetrated as far into the Union Pacific main-line territory as Denver, and connected at the north with the eastern terminals of both the Great Northern and Northern Pacific systems. This move meant but one thing to Harriman: the Hill-Morgan interests were trying to surround the Union Pacific and make it powerless, just as the Southern Pacific had attempted to do many years before.

Harriman now played one of his bold strokes. He immediately began to purchase Northern Pacific stock in the open market in order to secure control of that property. It was well known that while the Hill-Morgan alliance dominated the

Northern Pacific, it did not actually own a majority of the stock, and to secure this majority was Harriman's purpose. This move would effectually check the invasion of the Union Pacific territory by giving the Harriman interests a voice in the control of the Chicago, Burlington and Quincy.

The price of Northern Pacific common stock soared day after day until on May 9, 1901, it sold at $1000 a share, and a momentary panic ensued. At the time Morgan was on the ocean and could not be reached. His partners were apparently not equal to the emergency. But Harriman was. When the panic reached its height, both interests had purchased far more than a majority of Northern Pacific stock — in contracts for future delivery. It was seen that to insist on the delivery of shares which did not exist would not only bankrupt every "short" speculator, large and small, but would undoubtedly bring all Wall Street tumbling down like a house of cards. So, in the midst of the excitement, the two interests reached a compromise.

The outcome was the formation of the Northern Securities Company with a capital of $400.000,000, nearly all of which was issued to acquire the capital stocks of the Northern Pacific and Great

Northern railroads. All the properties, including the Burlington, thus came under the joint control of the Harriman and Hill groups. The division of territory on both the east and the west was worked out amicably: the Northern Pacific abandoned some of its plans for extensions in Oregon, and the Burlington system remained as it was, with the understanding that no extensions should be built to the Pacific coast. Later the Burlington acquired control of a cross-country system, the Colorado Southern, extending south to the Gulf, but to this day has made no attempt to build beyond the lines it owned to Wyoming in 1901.

As is well known, the Northern Securities Company was subsequently declared to exist in violation of the Sherman Anti-Trust Act, and on a decision of the United States Supreme Court in 1904 it was practically dissolved and all its securities were returned to the original holders. This dissolution left the Hill-Morgan interests in undisputed control of the Burlington properties, but harmonious relations had in the meantime been established among the contestants, assuring an equitable division of territory and traffic. The final outcome was that the Union Pacific Railroad Company, which had purchased with its large

surplus and by the use of its high credit many million dollars' worth of the capital stocks of the Great Northern and Northern Pacific railroads, received these stocks back after several years of great prosperity and after the appreciation in the market values of the stocks had exceeded $60,000,000. There was no further necessity for holding them and most of the stocks were sold at the high prices of 1905 and 1906, with actual net profit for the Union Pacific Railroad in excess of $50,000,000. No such gigantic financial transaction as this had ever before been carried through by an American railroad corporation.

With an overflowing treasury in the Union Pacific, Harriman immediately turned his face toward the East. It had for years been one of his dreams to control a continuous line of railroad from the Atlantic to the Pacific. As early as 1902 he had all but completed negotiations for the acquisition of the New York Central lines in the interest of the Union Pacific; but this plan had met with opposition from the Vanderbilts and Morgan and had been dropped. Harriman now took advantage of an opportunity which presented itself to acquire for the Union Pacific what was practically a dominating interest in the Baltimore

and Ohio, a large block of whose stock was disposed of by the Pennsylvania Railroad. Harriman had already largely added to the Union Pacific's holdings in the Illinois Central. Jointly with the Lake Shore of the Vanderbilt system, the Baltimore and Ohio had, as already described, acquired a dominating interest in the Reading Company, including all the latter company's interests and affiliations as well as its entry into the New York district through control of the Central Railroad of New Jersey. Harriman, therefore, by a single stroke, now found himself in practical possession of a coast-to-coast system of railroads extending all the way from New York to San Francisco, Portland, and Los Angeles, and passing through all the important cities of the country. The Illinois Central system, operating nearly five thousand miles of road southward from Chicago to New Orleans, passing through St. Louis, with an arm reaching out to Sioux City on the west and a network of branches covering the Middle States, had thus become the great link welding together the eastern and western Harriman systems.

Later the Union Pacific acquired large interests in other properties and purchased substantial amounts of stock in the Atchison, Topeka and

Santa Fé, the New York Central. the St. Paul, and the Chicago and North Western railroads. It also acquired a dominating interest in the Chicago and Alton property, operating from Chicago to St. Louis, with Western branches. In the panic period of 1907, Harriman personally purchased from Charles W. Morse, who had acquired the property from Morgan a short time before, the entire capital stock of the Central of Georgia Railway, which he later turned over to the Illinois Central. The Central of Georgia lines connect at several points with the Illinois Central and have given the system various outlets on the South Atlantic seaboard.

Harriman died in September of 1909, and with his death the wizard touch was clearly gone. What would have been the later history of the Union Pacific had he lived can be only conjectured. The new management, with Judge Robert S. Lovett at its head, continued the broad and efficient operation which had characterized Mr. Harriman's régime, but it soon abandoned the policy of further growth and expansion. This alteration in policy, however, was perhaps more the result of changing conditions than of relinquishment of Harriman's aims. Many new laws for the regulation of the

railways had been passed, and in 1906 the powers of the Interstate Commerce Commission were greatly augmented. A period of reform had now begun, and after 1909 a wave of "progressivism" overspread the country. New interpretations were given to the Sherman Act, and suits were soon under way against all the railroads and industrial combinations which appeared to be infringing that statute. The great Standard Oil and Tobacco trusts were dissolved in this period, and a suit which was brought to divorce the Union Pacific and the Southern Pacific Company was finally decided against the Union Pacific, with the result that the two big properties were separated. The Union Pacific turned a large amount of its Southern Pacific stock holdings over to the Pennsylvania Railroad, in exchange for which it received from the Pennsylvania the remainder of the Baltimore and Ohio stock which the Pennsylvania interests had retained after the sale to the Union Pacific in 1906. Immediately after this, the Union Pacific management, seeing no particular advantage in retaining an interest in the Baltimore and Ohio, gave the shares to its own stockholders in a special dividend.

Thus, since Harriman's death, the Union Pacific

Railroad has once more returned to very much its original condition prior to its acquisition of the Southern Pacific. It still controls the Illinois Central and the Chicago and Alton and has investment interests in a large number of other railroads. It is still the premier system of the West and promises to remain so indefinitely; but the bold Harriman touch is gone and will never return.

CHAPTER XII

THE AMERICAN RAILROAD PROBLEM

During the last fifty years the railroad has perhaps been most familiar to the American people as a "problem." As a problem it has figured constantly in politics and has held an important position in many political campaigns. The details that comprise this problem have been indicated to some extent in the preceding pages — the speculative character of much railroad building, the rascality of some railroad promoters, the corrupting influence which the railroad has too frequently exerted in legislatures and even in the courts. The attempts to subject this new "monster" to government regulation and control have furnished many of the liveliest legislative and judicial battles in American history. Farmers, merchants, manufacturers, and the traveling public have all had their troubles with the transportation lines, and the difficulties to which these struggles have given rise

have produced that problem which is even now apparently far from solution.

Railroads had been operating for many years in this country before it dawned upon the farmers that this great improvement, which many had hailed as his greatest friend, might be his greatest enemy. It had been operating for several decades in the manufacturing sections before the enterprising industrialist discovered that the railroad might not only build up his business but also destroy it. From these discoveries arose all those discordant cries of "extortion," "rebate," "competition," "long haul and short haul," "regulation," and "government ownership," which have given railroad literature a vocabulary all its own and have written new chapters in the science of economics. The storm center of all this agitation concerned primarily one thing — the amount which the railroad might fairly charge for transporting passengers and freight. The battle of the people with the railroads for fifty years has been the "battle of the rate." This has taken mainly two forms, the agrarian agitation of the West against transportation charges, and the fight of the manufacturing centers, mainly in the East, against discriminations. Perhaps its most characteristic episodes have been

the fight of the "Grangers" and their successors against the trunk lines and that of the general public against the Standard Oil Company.

Even in the fifties and the sixties, the American public had its railroad problem, but it was quite different in character from the one with which we have since grown so familiar. The problem in this earlier period was merely that of getting more railroads. The farmer pioneers in those days were not demanding lower rates, better service, and no discrimination and anti-pooling clauses; they asked for the building of more lines upon practically any terms. This insistence on railroad construction in the sixties explains to a great extent the difficulties subsequently encountered. In a large number of cases railroad building became a purely speculative enterprise; the capitalists who engaged in this business had no interest in transportation but were seeking merely to make their fortunes out of constructing the lines. Not infrequently the farmers themselves furnished a considerable amount of money, expecting to obtain not only personal dividends on the investment but larger general dividends in the shape of cheap transportation rates and the development of the country. Even when the builders were more honest, their mistaken

enthusiasm had consequences which were similarly disastrous. The simple fact is that a considerable part of the Mississippi Valley, five or ten years after the Civil War, found itself in the possession of railroads far in excess of the public need. In the long run this state of affairs was probably not a great economic evil, for it stimulated development on a tremendous scale; but its temporary effect was disastrous not only to the railroads themselves but to the struggling population. The farmer had mortgaged his farm to buy stock in the road; and his town or county or State had subsidized the line by borrowing money which it frequently could not repay. When this property became bankrupt, not only wiping out these investments but leaving the agricultural population at the mercy of what it regarded as exorbitant rates and all kinds of unfair discriminations with high interest charges on its mortgages and high local taxes, the blind fury that resulted among the farmers was not unnatural.

Many of the railroad evils were inherent in the situation; they were explained by the fact that both managers and public were dealing with a new agency whose laws they did not completely understand. But the mere play of personal forces in themselves aggravated the antagonism. The fact

that most of the railroad magnates lived in the East added that element of absentee landlordism which is essential to most agrarian problems. Many of the Western capitalists were real leaders; yet it is only necessary to remember that the most active man in Western railroads in the seventies was Jay Gould, to understand the suspicion in which the railroad promoter of that day was generally held. It is significant that of all the existing railroad abuses, the one which seemed to arouse particular hostility was the free pass. There were many greater practical evils than this, yet the fact that most editors and public officials and politicians and legislators and even many judges rode "deadhead" was a constant reminder of the influence which this "alien" power exercised over the government and the public opinion of the communities of which it was theoretically the servant. Many of these roads had a greater income than the States they served; their payrolls were much larger; their head officials received higher salaries than governors and presidents. The extent to which these roads controlled legislatures and, as it seemed at times, even the courts themselves, alarmed the people. The stock-jobbing that had formed so large a part of their history added nothing to their popularity.

Yet, when all these charges against the railroads are admitted, the fundamental difficulty was one which, at that stage of public enlightenment, was beyond the power of individuals to control. Nearly all the deep-seated evils arose from the fact that the railroads were attempting to do something which, in the nature of the case, they were entirely unfitted to do — that is, compete against one another. When the great trunk lines were constructed, the idea that competition was the life of trade held sway in America, and the popular impression prevailed that this rule would apply to railroads as well as to other forms of business. To the few farseeing prophets who predicted the difficulties which subsequently materialized, the answer was always made that competition would protect the public from extortion and other abuses. But competition between railroads is well-nigh impossible. Only in case different companies operated their cars upon the same roadbed — something which, in the earliest days, they actually did on certain lines — could they compete, and any such system as a general practice is clearly impracticable. One railroad which paralleled another in all its details might compete with it, but there are almost no routes that can furnish

business enough for two such lines, and the carrying out of such an idea involves a waste of capital on an enormous scale. Probably the country received its most striking illustration of this when the West Shore Railroad in New York State was built almost completely duplicating the New York Central, with the result that both roads were nearly bankrupted.

While no one railroad can completely duplicate another line, two or more may compete at particular points. By 1870 this contingency had produced what was regarded as the greatest abuse of the time — the familiar problem of "long and short haul." Two or more railroads, starting at an identical point, would each pursue a separate course for several hundred miles and then suddenly come together again at another large city. The result was that they competed at terminals, but that each existed as an independent monopoly at intermediate points. The scramble for business would thus cause the roads to cut rates furiously at terminals; but since there was no competition at the intervening places the rates at these points were kept up, and sometimes, it was charged, were raised in order to compensate for losses at the terminals. Thus resulted that anomaly which

strikes so strangely the investigator of the railroad problem — that rates apparently have no relation to the distance covered, and that the charge for hauling a load for seventy-five miles may be actually higher than that for hauling the same load one hundred or one hundred and fifty miles. The expert, looking back upon nearly a hundred years of railroad history, may now satisfactorily explain this curious circumstance; but it is not surprising that the farmer of the early seventies, overburdened with debt and burning his own corn for fuel because he could not pay the freight exacted for hauling it to market, saw in the system only an attempt to plunder. Yet even the shippers at terminal points had their grievances, for the competition at these points became so savage and so ruinous that the roads soon entered into agreements fixing rates or formed "pools." In accordance with this latter arrangement, all business was put into a common pot, as the natural property of the roads constituting the pool; it was then allotted to different lines according to a percentage agreement, and the profits were divided accordingly. As the purpose of rate agreements and pools was to stop competition and to keep up prices, it is hardly surprising that they were not popular in the

communities which they affected. The circumstance that, after solemnly entering into pools, the allied roads would frequently violate their agreements and cut rates surreptitiously merely added to the general confusion.

The early seventies were not a time of great prosperity in the newly opened West, and the farmers, looking about for the source of their discomforts, not unnaturally fixed upon the railroads. Their period of discontent coincided with what will always be known in American history as "the Granger movement." In its origin this organization apparently had no relation to the dissatisfaction which its leaders afterward so successfully capitalized. Its founder, Oliver Hudson Kelley, at the time when he started the fraternity was not even a farmer but a clerk in the Agricultural Bureau at Washington. Afterward, when the Grangers had become an agrarian force to be feared, if not respected, it was a popular jest to refer to the originators of this great farmers' organization as "one fruit grower and six government clerks." Kelley's first conception seems to have been to organize the farmers of the nation into a kind of Masonic order. The Patrons of Husbandry, which was the official title of his society, was a secret organization, with

signs, grips, passwords, oaths, degrees, and all the other impressive paraphernalia of its prototype. Its officers were called Master, Lecturer, and Treasurer and Secretary; its subordinate degrees for men were Laborer, Cultivator, Harvester, and Husbandman; for women — and women took an important part in the movement — were Maid, Shepherdess, Gleaner, and Matron, while there were higher orders for those especially ambitious and influential, such as Pomona (Hope), Demeter (Faith), and Flora (Charity). Certainly these titles suggest peace and quiet rather than discontent and political agitation; and, indeed, the organization, as evolved in Kelley's brain, aimed at nothing more startling than the social, intellectual, and economic improvement of the agricultural classes. Its constitution especially excluded politics and religion as not being appropriate fields of activity. It did propose certain forms of business coöperation, such as the common purchase of supplies, the marketing of products, perhaps the manufacture of agricultural implements; but its main idea was to contribute to the social well-being of the farmers and their families by frequent meetings and entertainments, and to improve farming methods by collecting agricultural statistics and

by spreading the earliest applications of science to agriculture. The idea that the "Grange," as the organization was generally known, would ultimately devote the larger part of its energies to fighting the railroads apparently never entered the minds of its founders.

Had it not been for the increasing agricultural discontent against railroads and corporations in general, the Patrons of Husbandry would probably have died a painless death. But in the early seventies this hostility broke out in the form of minority political parties, the principal plank in whose platform was the regulation of the railroads. Farmers' tickets, anti-monopoly parties, and anti-railroad candidates began to appear in county and even state elections, sometimes achieving such success as to frighten the leaders of the established organizations. The chief aim of the discontented was "protection from the intolerable wrongs now inflicted on us by the railroads." "Railroad steals," "railroad pirates," "Wall Street stock-jobbers," and like phrases supplied the favorite slogans of the spirited rural campaigns. These parties, though much ridiculed by the metropolitan press, started a political agitation which spread with increasing force in the next forty years and in recent times

eventually gained the ascendency in both the old political parties.

The panic of 1873 and the unusually hard times that followed added fuel to the flame. It was about this time that the Patrons of Husbandry gave evidences of a new vitality, chiefly manifested in a rapidly increasing membership. On May 19, 1873, there were 3360 Granges in the United States, while nineteen months later, on January 1, 1875, there were 21,697, with a total membership of over seven hundred thousand. In the Eastern States the movement had made little progress; in the South it had become somewhat more popular; in such States as Missouri, Iowa, Kansas, Nebraska, Montana, Idaho, and Oregon, it had developed into almost a dominating influence. It is not difficult to explain this sudden and astonishing growth: the farmers in the great grain States seized upon this organization as the most available agency for remedying their wrongs and rescuing them from poverty. In their minds the National Grange now became the one means through which they could obtain that which they most desired — cheaper transportation. Not only did its membership show great increase, but money from dues now filled the treasury to overflowing. At the same time the

organs of the capitalist press began to attack the Grange violently, while the politicians in the sections where it was strongest sedulously cultivated it. But the leaders of the movement never made the fatal mistake of converting their organization into a political party. It held no political conventions, named no candidates for office, and even officially warned its members against discussing political questions at their meetings. Yet, according to a statement in the *New York Tribune*, "within a few weeks the Grange menaced the political equilibrium of the most steadfast States. It had upset the calculations of veteran campaigners, and put the professional office-seekers to more embarrassment than even the Back Pay." The Grangers fixed their eyes, not upon men or upon parties, but upon measures. They developed the habit of questioning candidates for office concerning their attitude on pending legislation and of publishing their replies. Another favorite device was to hold Granger conventions in state capitals while the legislature was sitting and thus to bring personal pressure in the interest of their favorite bills. This method of suasion is an extremely potent political force and explains the fact that, in certain States where the Granges were most

powerful, they had practically everything their own way in railroad legislation.

The measures which they thus forced upon the statute books and which represented the first comprehensive attempt to regulate railroads have always been known as the "Granger Laws." These differed in severity in different States, but in the main their outlines were the same. Practically all the Granger legislatures prohibited free passes to members of the legislatures and to public officials. A law fixing the rate of passenger fares — the maximum ranging all the way from two and one-half to five cents a mile — was a regular feature of the Granger programme. Attempts were made to end the "long and short haul" abuse by passing acts which prohibited any road from charging more for the short distance than for the long one. More drastic still were the laws passed by Iowa in 1874 and the famous Potter bill passed by Wisconsin in the same year. Both these measures, besides fixing passenger fares, wrote in the law itself detailed schedules of freight rates. The Iowa act included a provision establishing a fund of $10,000 which was to be used by private individuals to pay the expenses of suits for damages under the act, and this same act made all railroad officials and employees

who were convicted of violations subject to fine and imprisonment. The Potter act was even more severe. It not only fixed maximum freight rates, but it established classifications of its own. The railroads asserted that the framers of this law had simply taken the lowest rates in force everywhere and reduced them twenty-five per cent. But Iowa and Wisconsin and practically all the States that passed the Granger laws also established railroad commissions. For the most part these commissions followed the model of that established by Massachusetts in 1869, a body which had little mandatory authority to fix rates or determine service, but which depended upon persuasion, arbitration, and, above all, publicity, to accomplish the desired ends. The Massachusetts commission, largely owing to the high character and ability of its membership — Charles Francis Adams serving as chairman for many years — had worked admirably. In the most part these new Western commissions were limited in their activities to regulating accounting, obtaining detailed reports, collecting statistics, and enforcing the new railroad laws.

These measures, following one another in rapid succession, produced a national, even an international sensation. The railroad managements

stood aghast at what they regarded as demagogic invasions of their rights, and the more conservative elements of the American public looked upon them as a violent attack upon property. Up to this time there had been little general understanding of the nature of railroad property. In the minds of most people a railroad was a business, precisely like any other business, and the modern notion that it was "affected with a public interest" and that the public was therefore necessarily a partner in the railroad business had made practically no headway. "Can't I do what I want with my own?" Commodore Vanderbilt had exclaimed, asserting his exclusive right to control the operations of the New York Central system; and that question fairly well represented the popular attitude. That the railroad exercised certain rights of sovereignty, such as that of eminent domain, that it actually used in its operations property belonging to the State, and that these facts in themselves gave the State the right to supervise its management, and even, if necessity arose, to control it — all this may have been recognized as an abstruse legal proposition, but it occupied no practical place in the business consciousness of that time. Naturally the first step of the railroads was therefore to contest the

constitutionality of the laws, and while these suits were pending they resorted to various expedients to evade these laws or to mitigate their severity. A touch of liveliness and humor was added to the situation by the thousands of legal fare cases that filled the courts, for farmers used to indulge in one of their favorite agricultural sports — getting on trains and tendering the legal two and a half cents a mile fare, a situation that usually led to ejectment for nonpayment and then to a suit for damages. The railroads easily met the laws forbidding lighter charges for long than for short hauls by increasing the rates for the longer distances, and the laws fixing maximum rates within the State by increasing the rates outside the State. When the courts decided the cases against the railroads, as in most cases they did, these corporations set about to secure the repeal of the laws. They started campaigns of education, frequently through magazine or newspaper articles pointing out the injustice of the Granger laws and insisting that they were working great public damage. It is a fact that a decrease in railroad construction followed the Granger demonstration, and the friends of the railroads insisted that timid capital hesitated to embark in an enterprise that was constantly subject

to legislative attack. These campaigns succeeded much better than the more violent opposition to which the railroads had first resorted. The Western States in the majority of cases repealed their most drastic legislation. Nearly all the laws fixing maximum rates disappeared from the books, and even Iowa and Wisconsin substituted for these measures supervisory and advisory commissions after the Massachusetts model.

While the Granger movement thus failed effectively to curb the railroads, it succeeded in arousing great popular interest in the railroad problem and in placing before the public several of the most important details of that problem. Not the least of its achievements were the decisions which it obtained from the Supreme Court of the United States. The Granger cases are among the most epoch-making in American history, and they fixed for all time the principles of American policy in dealing with the railroad question. They are particularly worthy of study by those who have regarded the Supreme Court as the bulwark of social injustice and as a body which can always be relied upon to protect the rights of property against the interests of the masses. In its railroad decisions this charge hardly holds; for these Granger

cases sustain practically all the legal contentions made by the Granger legislatures.[1] The cases fixed for all time the point that a State, acting under the police power, may regulate the charges of a railroad even to the extent of fixing maximum rates. They even went so far as to hold that the right to fix rates is not subject to any restraint by the court on the ground of unreasonableness, a principle which the Supreme Court has reversed in more recent times. The courts also held that a State, at least until Congress acted, could regulate interstate commerce, but this decision also has since then been reversed. These subsequent reversals of decisions which were exceedingly popular at the time, however, not only constituted sound law but promoted the public interest, for they established that body of law which has made possible the present more comprehensive system of Federal regulation of railroads.

Meanwhile the demand for regulation was gaining strength in the Eastern States, but for somewhat different reasons. The farmers of New England, New York, and the Eastern region in general had

[1] The cases of particular interest were: Munn *vs.* Illinois, 94 U. S. 114; Peik *vs.* Chicago and Northwestern Railway Company, 94 U. S. 164; and Chicago, Burlington and Quincy Railway Company *vs.* Cutts, 94 U. S. 155.

not particularly sympathized with the Granger legislation; they already had great difficulty in competing with the large Western farms, and a reduction in rates to the seaboard would have made their position even less endurable. This attitude was unquestionably selfish but entirely comprehensible. The agitation for railroad reform in the East came chiefly from the manufacturing and commercial classes. Here the main burden of the complaint was the railroad rebate. This was a method of giving lower rates to large shippers than to small — charging the favored shipper the published rate and then, at stated periods, surreptitiously returning part of the payment. This was perhaps the most vicious abuse of which the railroads have ever been guilty. That the common law forbade the practice and that it likewise violated the implied contract upon which the railroad obtained its franchise was hardly open to dispute; yet up to 1887 no specific law in this country prohibited the practice. For many years the rebate hung over the American business world, a thing whose existence was half admitted, half denied, a kind of ghostly economic terror that seemed persistently to drive the small corporation to bankruptcy and the large corporation to dominating

influence. The Standard Oil Company was the "monster" that was believed especially to thrive upon this kind of sustenance, though this was by no means the only industry that maintained such secret relations with the railroads; the Carnegie Steel Corporation, for example, accepted rebates almost as persistently. It was not until 1879, when the Hepburn Committee in New York State had its hearings, that all the facts concerning the rebate were exposed officially to public view. The contracts of the Standard Oil Company with the railroads were placed upon the records and these showed that all the worst suspicions regarding this practice were justified. This disclosure made the railroad rebate one of the most familiar facts in American industrial life; and in consequence a demand arose for Federal legislation that would definitely make the practice a crime and also for some kind of Federal supervision to do effectively the work which the state commissions had failed to do.

By this time it was clear enough that the only hope of adequate regulation lay with the Federal Government. Congressman Reagan, of Texas, had for years been pushing a bill to regulate interstate commerce and to prohibit unjust discriminations by common carriers; other measures

periodically made their appearance in the Senate; but the Houses had been unable to agree and nothing had been done.

Two facts presently gave great impetus to the movement; in 1886 the United States Supreme Court, reversing its previous decision, decided that no State could fix rates for railroad lines outside its own borders, in other words, that interstate rates were exclusively within the jurisdiction of the Federal authority[1]; and a Senate committee, under the chairmanship of Shelby B. Cullom, conducted an investigation of railroad conditions which made clear the need of immediate reform. As a consequence, Congress passed the Interstate Commerce Act, which received President Cleveland's signature on February 4, 1887. This measure specifically made illegal rebates, pools, higher charges for short than for long hauls (when the hauls in question were upon the same road); it required railroads to file their tariffs, and it established a commission of five members, who had powers of investigation, including the right to make the companies produce their books. This commission received power to establish systems of accounting and the like, but it

[1] Wabash, St. Louis and Pacific Railway Company *vs.* Illinois, 118 U. S. 557.

had no prerogative to fix rates. Inadequate as this measure seemed to the radical element, it was generally hailed as marking the beginning of an era in the Federal control not only of railroads but of other corporations, and this impression was increased by the high character of the men whom President Cleveland appointed to the first board.

The Interstate Commerce Commission lasted essentially in this form for nearly twenty years. On the whole it was a failure. Such was the judgment passed by Justice Harlan of the United States Supreme Court when he remarked in one of his decisions that the commission was "a useless body for all practical purposes"; and such, indeed, was the judgment of the commission itself, for in its report of 1898 it declared that the attempt at Federal regulation had failed. The chief reasons for this failure, the commission said, were the continued existence of secret rates and the fact that published tariffs were not observed.[1] The managers of the great American railroad systems would not yet admit that the fixing of railroad rates was the concern of any one but themselves, and they

[1] But it should be added that the effectiveness of the commission as an administrative and regulating body was diminished by decisions of the courts, notably the decision of the Supreme Court in the maximum rate case. See 160 U. S. 479.

still regarded railroad management as essentially a private business. If they could obtain large shipments by granting special rates, even though they had to do it by such underhanded ways as granting rebates, they believed that they were entirely justified in doing so. Thus rebates flourished almost as much as ever, passes were still liberally bestowed, and pools were still formed, though they sometimes took the shape of "gentlemen's agreements."

In 1906, when President Roosevelt became intensely active in the railroad problem, conditions were fairly demoralized. Attempts to enforce the anti-pooling clause had led railroads to purchase competing lines, and when the United States Supreme Court pronounced this illegal, the situation became chaotic. The evils of over-capitalization also became an issue of the times. The Interstate Commerce Commission had become almost moribund, and there was a general sentiment that the trouble arose from the fact that the commission had no power to fix rates and that the solution of the railroad problem would come only when such power was vested in it.[1] The Interstate Commerce

[1] The Elkins Act of 1903 had, it is true, increased the effectiveness of the commission in dealing with discriminations, but it had not solved the problem of securing reasonable rates.

Act which became a law on June 29, 1906, was the outcome of one of the greatest battles of President Roosevelt's political life. The act increased the membership of the commission from five to seven members, placed under its jurisdiction not only railroads but pipe lines, express companies, and sleeping-car companies, added to the other familiar restrictions a "commodities clause," which prohibited any railroad from transporting a product which it had produced or mined, "except such articles or commodities as may be necessary and intended for its use in the conduct of its business as a common carrier" — this clause was intended to end the railroad monopoly of the coal mines — and made the failure to observe published tariffs a crime punishable with imprisonment. The amended law did not give the commission the right to fix rates in the first instance but did empower it, on complaint, to investigate charges and on the basis of this investigation to determine just maximum rates, regulations, and practices, though carriers were given the right of appeal to the courts.

Thus, in essence, the public had obtained the reform which it had been demanding for years. The reorganized commission did not hesitate to exercise its new powers. It soon began actually

fixing rates, and from being a half-alive despised institution it rapidly developed into one of the most powerful agencies of administration. In the succeeding ten years its powers were still further enlarged by acts of Congress and the privilege of fixing charges practically passed out of the hands of the railroads into the control of the Interstate Commerce Commission. The railroads, that is, practically lost the power to regulate their own income. Meanwhile, the progressive movement in American politics had led to the creation of commissions in most of the States, with similar authority over rate making within the States, besides exercising numerous other powers over service and capitalization. Many railroads fell upon evil days and receiverships again became common. Naturally the railroad managers attributed these calamities to the fact that they were so constantly being regulated; but they probably pushed this claim too far, for the causes of their troubles were more complex.

In 1916, in the heat of a political campaign, the Federal Government took a step which introduced a new principle into railroad management and made the roads practically helpless. The four brotherhoods of railroad operatives were making

demands for a so-called eight-hour day, and threatened a general strike that would paralyze all business and industry and throw the whole life of the nation into chaos. Properly to appreciate the consequences of this event, it is necessary to keep in mind the fact that the plea for an "eight-hour day" was spurious. An eight-hour day cannot be rigidly enforced on railroads; the workmen well knew this, and indeed they did not really demand such working hours. What they asked for was a full day's pay for eight hours and "time and a half" pay for all in excess of that amount; that is, they demanded an increase in wages. President Wilson, having failed in his attempt to settle the difficulty by arbitration, compelled a Democratic Congress over which his sway was absolute to pass a law — sponsored by Chairman Adamson of the House Committee on Interstate Commerce — which granted practically what the unions demanded. In passing this law, Congress asserted an entirely new power which no one had ever suspected that it possessed — that of fixing the wages which should be paid by common carriers and possibly by other corporations engaged in interstate commerce. The railroads immediately took the case to the United States Supreme Court, which

promptly sustained the law. This decision, unquestionably the most radical in the history of that body, declared virtually that Congress could pass any law regulating railroads which the public interest demanded.

And thus, after fifty years of almost incessant struggle with the public, was the mighty railroad monster humbled. It had lost power to regulate the two items which represent the existence of a business — its income and its outgo. The Interstate Commerce Commission was now fixing railroad rates, and Congress was fixing the amounts of railroad wages. It remained for the Great War to precipitate the only logical outcome of this situation — government control. The steadily increasing responsibilities of war soon told heavily upon all lines until, in the latter part of 1917, the whole railroad system of the United States had all but broken down. The unions were pressing demands for wage increases that would have added a billion dollars a year to their annual budgets. The fact that so large a part of the output of American locomotive works was being shipped to the Allies made it difficult for the American lines to maintain their own supply. Nearly all coastwise ships and tugs were utilized for war work, a large part of them had been

sent to the other side, and this put an additional strain upon the railroads. The movement of troops, the heavy building operations in cantonments and shipbuilding plants, the manufacture and transportation of munitions, all put an unprecedented pressure upon them. Everywhere there was great shortage of cars, equipment, and materials. Possibly the railroads might have risen to the occasion except for the fact that the enormous increase in the cost of labor and supplies made demands upon their treasuries which they could not meet. They repeatedly asked the Interstate Commerce Commission for an increase in rates, but this request was repeatedly refused. The roads were therefore helpless, and their operations became so congested as to create a positive military danger. Under these circumstances there was profound relief when President Wilson took over the roads and placed them under government control, with William Gibbs McAdoo, Secretary of the Treasury, in active charge.

McAdoo immediately took the step which the Administration, while the railroads were under private control, had steadily refused to sanction, and now increased the rates. These increases were so great that they made the public fairly gasp, but,

under the impulse of patriotism, there was a good-natured acquiescence. McAdoo also increased wages by hundreds of millions of dollars. His administration on the whole was an able one. He ignored for the moment the prevailing organization and managed the roads as though they constituted a single system. He instituted economies by concentrating ticket offices, establishing uniform freight classifications, making common the use of terminals and repair shops, abolishing circuitous routes, standardizing equipment, increasing the loads of cars and by introducing a multitude of other changes. All these reforms greatly increased the usefulness of the roads, which now became an important element in winning the war. Properly regarded, the American railroads became as important a link in the chain of communications reaching France as the British fleet itself. It is not too much to say that the fate of the world in the critical year 1918 hung upon this tremendous railroad system which the enterprise and genius of Americans had built up in three-quarters of a century. In February, 1918, Great Britain, France, and Italy made official representations to the American Government, declaring that unless food deliveries could be made as they had been prom-

ised by Hoover's food administration, Germany would win the war. McAdoo acted immediately upon this information. He gathered all available cars, taking them away from their ordinary routes, and rushed them from all parts of the country to the great grain producing States. All other kinds of shipments were discontinued; officials and employees from the highest to the lowest worked day and night; and presently the huge supplies of the indispensable food started towards the Atlantic coast. So successful was this operation that, on the 12th of March, the supplies so exceeded the shipping capacity of the Allies that 6318 carloads of food stood at the great North Atlantic ports awaiting transportation. This dramatic movement of American food supplies was an important item in winning the war and fairly illustrated the great part which the American railroads played in turning the tide of battle from defeat to victory.

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BIBLIOGRAPHICAL NOTE

General literature on the history of American railroads is surprisingly scarce. While numerous volumes have been written in recent years on special phases of the railroad question, few histories of any real value are available. Probably the best outline history of American railroad development as a whole is still Arthur T. Hadley's *Railroad Transportation, its History and its Laws* (1885), but this necessarily covers only the earlier periods of railroad growth and its discussions are limited to the problems which confronted the carriers many years ago. An extremely valuable book (now out of print) giving a very complete picture of railroad building and expansion in the pre-Civil War period is *The Book of the Great Railway Celebration of 1857*, by William Prescott Smith. This is primarily a description of the opening of the Ohio and Mississippi Railway, which connected the Mississippi Valley for the first time with the Eastern seaboard. A volume of real value, but somewhat technical, giving a complete and accurate view of the reorganization period of the great railroad systems, from 1885 to 1900, is *Railroad Reorganization*, by Stewart Daggett (1910). This book contains outline sketches of the histories of nearly all of the large systems, as well as very accurate details of the financial reorganizations of all of the defaulted properties.

The most comprehensive history of any American railroad system is *The Story of Erie*, by H. S. Mott (1900), but even this is partially unreliable and much of it is compiled from unofficial sources. On the financial history of the Erie Railroad, the really valuable authority is Charles Francis Adams in his *Chapters of Erie* (1871). This book furnishes a full and accurate account of the régime of Daniel Drew, Jay Gould, James Fisk, Jr., and the famous "Erie ring," including "Boss" Tweed, and also throws side lights on the character and career of Commodore Vanderbilt. Among other important histories of particular railroad systems may be mentioned *The Union Pacific Railway*, by John P. Davis (1894) and *History of the Northern Pacific Railroad*, by Eugene V. Smalley (1883); but neither of these volumes covers the recent and more interesting periods in the development of these properties. To get a complete and satisfactory view of the later development of the Northern Pacific system, one must turn to modern biographical works, such as the *Life of Jay Cooke*, by E. P. Oberholtzer (1910), the *Memoirs of Henry Villard* (1909), and the *Life of James J. Hill*, by Joseph Gilpin Pyle (1916), which also recounts at length the rise and development of the Great Northern Railway system. But in these volumes, as in many biographies of great men, the authors often betray a bias and misrepresent facts vital to an understanding of the development of both of these railroad systems. A recent volume entitled the *Life Story of J. P. Morgan*, by Carl Hovey, although extremely laudatory and therefore in many ways misleading, contains valuable information about the development of the Vanderbilt lines after 1880 and also about the financial vicissitudes and rehabilitation

of the many Morgan properties, such as the Southern Railway, the modern Erie system, the Northern Pacific, the Reading, and the Baltimore and Ohio.

Some of the railroad companies many years ago themselves published histories of their lines, but most of these attempts were of little value, as they were always too laudatory and one-sided and evidently were usually written for political purposes. The best of this class of railroad histories was a book issued by the Pennsylvania Railroad many years ago, giving a record (largely statistical) of the growth and development of its lines. But this book has been long out of print and covers the period prior to 1885 only.

For original material on American railroad history, one must depend almost entirely on financial and railroad periodicals and official and state documents. By far the most valuable sources for all aspects of railroad building and financing during the long period from 1830 to 1870 are the *American Railroad Journal* (1832–1871) and *Hunt's Merchant Magazine* (1831–1870). Both of these periodicals are replete with details of railroad building and growth. And for the period from 1870 to the present time the best authority is the *Commercial and Financial Chronicle*, with its various supplements. The story of modern railroading is so intertwined with finance and banking that to get any broad and complete view of the subject one must consider it largely from the viewpoint of Wall Street. For facts regarding operation and management of modern railroads, the *Railroad Age-Gazette* also is extremely useful. By far the most valuable sources for railroad statistics, railroad legislation, and all related facts, are the annual reports and bulletins of the Interstate Commerce Commission.

which have been regularly issued since 1888. Many state commissions also have issued volumes of value.

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